The struggle to afford adequate energy: different ways of knowing fuel poverty

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This thesis is submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy

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Declaration

This is to certify that this thesis is entirely my own work and that none of the material has previously been presented for a higher degree at any university.

Signed…… Date……..

Abstract

This thesis examines the co-existence of three ways of knowing fuel poverty – statistical, procedural and experiential – how they interrelate and interact and the implications that follow for the opportunities and challenges of tackling what has proved a persistent inequality and injustice in UK society. There has been significant policy attention and practical action taken over the last two decades which has involved the development of definitions, categories, processes and procedures through which action can be directed and enacted. All of this has been an attempt to know and act upon the struggles that are experienced by 'fuel poor' households. The focus of this thesis will be on different ways in which the phenomenon of fuel poverty can be, and is being, known – through the immediate everyday experiences of households, through the procedures developed and followed by local organisations working to provide help to those 'in need' and through the statistical definition and modelling that provides the foundation of government policy. These three ways of knowing are investigated through a research design taking a qualitative approach involving interviews with older householders, ethnographic-style observations with three local organisations in England during the winter of 2012 – 2013, and analysis of policy and related documents on statistical modelling. The thesis found that the statistical and experiential ways of knowing are characterised and understood by fundamentally different forms of knowledge and processes of knowledge production, with the procedural way of knowing needing to directly interact with both the statistical and experiential understandings of fuel poverty. Flows of resources and knowledge show how three different ways of knowing fuel poverty interrelate and interact through policy and action on the ground. These findings have implications for future action against fuel poverty, especially where partnership working and direct interaction with households is concerned.

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And to my “supervisors” of all things non-PhD, I am endlessly grateful for the unwavering support of my parents who never let me forget that they were there with me every single step of the way. None of my journey to this point would have been possible without them.

My colleagues and friends of Lancaster Environment Centre and the DEMAND centre have provided invaluable support, advice, laughter, space to be curious but most of all, understanding. Without them the journey would have been harder and much less fun. The water may pour (literally) but, with them, I have learnt to dance in the rain despite it all.

And finally, the participants, who may never know the effect that they have had on me, as a person and as a researcher, but with their influence, I am now ready to take steps into a new chapter. This thesis is undoubtedly for them. From a small girl I wanted to be ahead of where I was, believing that after my first day at school I would be able to read my bedtime story. It has been the same story for my PhD, on the first day I expected to get it right but over a thousand days later I still don't feel like I can imagine the whole of the story. Instead it has taught me that I must take further steps in trying to ensure that there are far better things ahead than any we leave behind for the fuel poor.

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Abbreviations

CERT: Carbon Emissions Reduction Target
CSE: Centre for Sustainable Energy
CWP: Cold Weather Payment
DECC: Department of Energy and Climate Change
ECO: Energy Company Obligation
ESH: electric storage heating
EWD: Excess Winter Deaths
GCH: gas central heating
HECA: Home Energy Conservation Act
JRF: Joseph Rowntree Foundation
LIHC: Low Income High Cost definition of fuel poverty
NEA: National Energy Action
OFGEM: Office of Gas and Electric Markets
WFP: Winter Fuel Payment
WHD: Warm Home Discount

Chapter 1: Introduction

1.1 The beginning: energy and the struggle for affordability

We live with energy all around us. Hidden within switches, wires, pipes and meters ticking over, we inhabit our houses not using energy but *doing* things that use energy. But behind closed doors lies a struggle for many. A struggle to afford energy. Unable to use the services that energy is normally in the home to provide. Discussions often focus on "the fuel" or "the energy" but the heart of the struggle is an invisible restriction, a pressure on people being able to live in their home in a way that allows them to lead a healthy comfortable life. It is, for example, the pregnant woman who is not getting enough calcium because she does not buy dairy products because she doesn't have her fridge turned on. She is trying to save up money so that when her child is born she can have the heating on. Here is the struggle for her and many others to afford adequate energy.

The price of energy has increased rapidly over the last two decades (Department of Energy & Climate Change 2015a), pricing it above what many household budgets can readily cope with. As large energy bills arrived on doorsteps, people realised that as a portion of the household budget, energy bills were increasing without the same increase in incomes. Their day to day struggle to manage household finances became all the more intense.

Some people are more at risk of the consequences of this struggle than others, particularly those more vulnerable to living in a cold home. Older people, those with young children and disabled people are predominantly understood to be the most vulnerable groups because of the increased risk to their health and their potentially difficult existing living situations.

The decisions that householders feel that they have to make as a consequence varies depending on their situation, their needs and where they might be able to find flexibility, but they can include spending less on food and living in cold temperatures that put physical and mental health and household disconnection from energy at risk (Beatty, Blow & Thomas F. Crossley 2014; Anderson et al. 2012; Gibbons & Singler 2008; Harrington et al. 2005; O'Neill et al. 2006; O'Sullivan et al. 2014; Bhattacharya et al. 2003). However the most severe consequence of this struggle is the additional deaths as a result of cold periods, which is especially marked for households in the UK (Healy 2003) as illustrated in Figure 1.1.

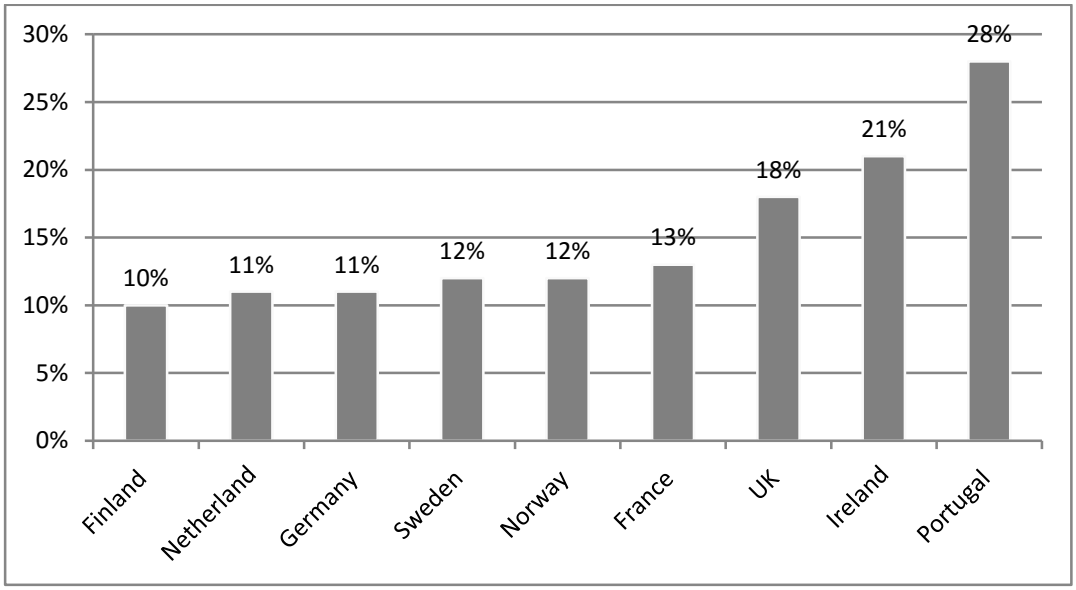


Figure 1.1 Average proportion of winter deaths that are excess, 1988-1997, selected European countries. Adapted bar chart from Hills (2011: p71) based on data in Healy, 2003.

It is striking that this problem is so acute in the UK despite a relatively mild climate without extremes of temperature. The explanation is generally put down to the fact that the UK has some of the oldest housing stock in Europe (Boardman 2007) and, as implementation of high energy efficiency regulations has been slower (than say Scandinavian countries) much of the housing stock is relatively leaky with a poor standard of energy efficiency (Rudge 2012; Boardman 2012). In simple terms this means that more energy has to be put into these houses in an attempt to keep them warm, leading to high energy bills that cannot be afforded. This is not a problem to be solved with building regulations for new houses, the problem has to deal with the current UK housing stock as most current properties will still be standing in 2050 (25 million out of the 25.8 million) (Boardman 2007).

Ill health is a significant consequence of this situation, as is recognised with 159 mentions of ‘health’ in the UK 2015 Fuel Poverty strategy (Department of Energy & Climate Change 2015c). Health has this status because of the incidence of excess winter deaths (EWD), the difference in the number of people that die in the winter months compared to non-winter months (Boardman 2010). Whether illness is caused by people getting cold outside and being unable to warm up or because of low temperatures in the home is unclear, though evidence of low indoor temperatures as a direct cause has increased in recent years (Boardman 2010). A ten-year study found that the age of the householder and the age of the building to be the most significant indicators of excess winter deaths (Wilkinson et al. 2001) implying that

older people are particularly vulnerable to winter deaths (Aylin et al. 2001) as are those in energy inefficient homes (Wilkinson et al. 2004).

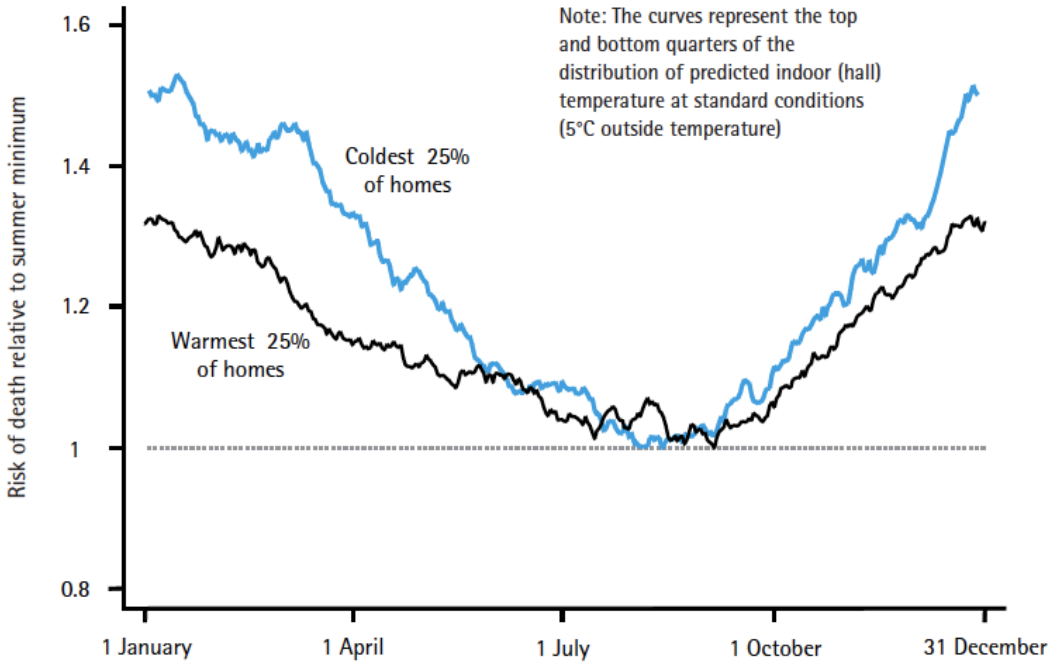


Figure 1.2 Chart of seasonal fluctuations in mortality in cold and warm homes in England, 1991. Source: Wilkinson et al (2001, p16)

Excess winter deaths (EWD) are mostly amongst older people and are discursively linked to fuel poverty and living at low temperatures (Rudge & Gilchrist 2005) though evidence of the direct causes of EWD is still being gathered (see Dear et al. 2011). It is suggested that 10 per cent of EWD could be attributed to fuel poverty directly, though some argue that this is too conservative an estimate (Hills 2011). Older people are at higher risk of increased blood pressure and blood coagulation, both of which are exacerbated by low temperatures and can ultimately lead to cardiovascular and respiratory problems (Hills 2011). The negative impacts of low temperatures on health are particularly problematic where people have pre-existing health conditions, such as arthritis (Dear et al. 2011).

This phenomenon under discussion is widely known and recognised as fuel poverty. This term is used in the thesis, as a label for a phenomenon which is known to exist and to be of concern, a phenomenon that is seen to be a problem in public and political debate. There is a strong discourse that fuel poverty is solely about affordable warmth, giving it a specific place in terms of rights, entitlements and justice in the UK (Walker & Day 2012; Boardman 2012). However, fuel poverty is and always has been technically about all energy services in the home. For this reason the

phrase ‘fuel poverty’ from now on refers to the struggle for households to keep warm and achieve access to adequate energy services at an affordable cost. This is not to deny the other understandings of it. Rather the focus of this thesis is how different understandings are made and what implications arise from their co-existence. As the objective of this work is to explore different understandings of fuel poverty, open and flexible terminology needs to be present when initially laying out the territory of the thesis. The framing behind each of the contexts in which the phrase is used can then be critically examined.

This existence of households struggling to afford their energy bills is a well-accepted phenomenon in the UK. However recognizing fuel poverty as a problem does not of itself tell us how you find it and act upon it and how you locate it in time and space. There has been significant policy attention and practical action taken over the last two decades to try to alleviate fuel poverty, which has involved the development of definitions, categories, processes and procedures through which action can be directed and enacted. All of this, in some way, has been an attempt to know and act upon the struggles that are experienced day to day by ‘fuel poor’ households. The focus of this thesis will be on different ways in which the phenomenon of fuel poverty can be, and is being, known – through the immediate everyday experiences of households, through the procedures developed and followed by local organisations working to provide help to those ‘in need’, and through the statistical definition and modeling that provides the foundation of government policy.

1.2 Three ways of knowing: statistical, experiential and procedural

I will argue that there are three ways of knowing fuel poverty – statistical, experiential and procedural - that have particular characteristics and bring forward different understandings of the phenomenon at issue.

First, the national definition of fuel poverty is a specific construct - the statistical way of knowing - based on quantitative data, abstract from actual households and residents, modelled on certain standards or expectations of energy consumption, building fabric and household income. The statistics that are created using this definition are produced at a national and regional scale by statisticians in national government. This statistical representation of fuel poverty produces knowledge that can be compared over time and space. The statistics are reported annually but relate to the situation of two years or more previous. This way of knowing aims at constructing a broad picture of a national situation in both scale and

distribution. It is a tool that is used, to emphasise the severity of fuel poverty and to thus support and direct policy. This statistical way of knowing is not focused on the individual person that Mr Smith is, but on how individuals are notionally part of a (collective) group that are 'fuel poor'.

The second way of knowing – the experiential - focuses on the individual. What the phenomenon is to a householder draws on fundamentally different inputs or 'data'. The struggle is how the householder experiences the phenomenon as part of their everyday life. The reality of living in their homes, the relation between the residents and their home environment. They do not need to understand energy efficiency or the building fabric, for example, instead they know the phenomenon through decisions of thermal comfort, household budgets and individual living preferences. When any factor causes people to struggle, it rarely goes unnoticed, but the struggle to afford energy becomes a particular part of everyday life, from the small decisions related to visiting friends, to big decisions to move house. This way of knowing brings forward diversity at a micro scale in both time and space. The contributing factors have the potential to change from one day to the next *as well as* to be immovable and static for years.

The third way of knowing, the procedural, is best imagined as sitting between the previous two. Organisations delivering help and support to residents intrinsically encounter and engage with the experiential way of knowing fuel poverty as they interact with householders. Their way of knowing is constructed through the processes and procedures that organisations use to understand the situation in their area and provide support to residents. Few of these organisations have consistent full funding but instead have secured funding and resources from a variety of sources, each being accompanied by their own set of rationale, criteria and expected outcomes, which may or may not relate explicitly to the national fuel poverty definition and statistics. In many cases the organisations also take part in national and regional discussions on new policies, definitions and funding proposals. This means that, in some part, their work may be subject to and framed by the national definition or the statistical representation of fuel poverty, whilst simultaneously they are working with people in their homes and engaging with their experiential forms of knowledge to provide solutions relevant to their everyday lives. Organisations follow codified procedures to assess a person's needs, judge what might be able to help them and justify why they have provided support to some over others. For this reason, I have called this way of knowing the procedural because it places emphasis on the fact that the importance lies with the actual work that these organisations are doing rather

than the organisations themselves, as is reflected in literature on intermediaries (Guy et al. 2012).

1.3 The research aim and questions

As I have set out, there are different ways in which the phenomena of fuel poverty can be known. They co-exist in the same landscape of policy and practice, including and excluding some forms of knowledge and each bringing forward a particular understanding of the phenomenon. Exactly how these different ways of knowing co-exist and interrelate and have effects have not been the subject of systematic and integrated exploration. The starting point of my investigation therefore is to examine what these different ways of knowing are saying about the nature of fuel poverty and how it is located, before moving on to consider the implications for policy and action that emerge from my analysis.

The specific questions this investigation will answer are:

1. How can different ways of knowing fuel poverty (statistical, procedural and experiential) be characterised, in terms of the forms of knowledge they draw on and the processes involved in their production?
2. What understandings of fuel poverty do these different ways of knowing bring forward?
3. How do these different ways of knowing interrelate and interact with each other?
4. What implications does the co-existence of these different ways of knowing fuel poverty have for our understanding of the challenges and opportunities for tackling the problem?

I tackle these four questions through a research design which involves a qualitative mixed methods study in England through examining national definitions, three local organisations tackling fuel poverty as a priority and the everyday lives of older people. The geographical focus of the study is three different areas of England as they are where the organisations and the older people inhabit. The research with households focused on older people specifically as the group is particularly at risk to the consequences of struggling to achieve access to adequate energy services compared to other socio-demographic groups of the population (Wilkinson et al. 2001; Aylin et al. 2001).

1.4 Contribution to the field

There are four ways that this thesis makes a contribution to the field of academic research.

First, as laid out in the research aim and research questions of the thesis, it will explore the co-existence of three ways of knowing. These are three objects of study that I have selected, each of which exist as the objects of research also taken by others. Others have focused on statistical approaches to fuel poverty (Lawson et al. 2015; Moore 2012b; Thomson & Snell 2013; Liddell et al. 2012; Fahmy 2011; Legendre & Ricci 2015; Sefton et al. 2005), on investigating the work of local organisations focused on addressing fuel poverty (Sheldrick & Macgill 1988; Beardmore & Morris 2011; Roberts & Baker 2006; Morris 2010), and on the daily domestic experience of using and affording energy (Middlemiss & Gillard 2015; De Haro & Koslowski 2013; Harrington et al. 2005; Anderson et al. 2012; Brunner et al. 2012; Petrova et al. 2013; O'Neill et al. 2006). But no studies have investigated all three together, taking them as alternative and co-existing ways of knowing the phenomenon, and subjecting them each to critical analysis. It is by exploring all three together and their interrelation that a distinctive contribution is made to the field. This is not to say that previous work has entirely failed to take all three into consideration, but one or another is always the focus and their co-existence is rarely given equal weighting. By doing so, contradictions and concordances in efforts to tackle fuel poverty are revealed allowing a re-imagination of how the different actors trying to tackle fuel poverty could work together. This is uses an understanding of fuel poverty as a category or classification, something which has been shifting in recent years and now requires clarification.

The second contribution of the thesis is the investigation of the statistics produced by the governmentally-used fuel poverty definition. Whilst the pitfalls of the definition have been acknowledged (Moore 2012a) there has been no attempt in the literature to explicitly examine how the inputs are constructed by conscious decisions and contribute to create a very specific picture of fuel poverty that may include and exclude certain information, with the exception of the independent Hills fuel poverty review (2012; 2011). This work will draw on existing literature that has explored how other (social problem) classifications are the work of construction (Evans & Colls 2009; Bowker & Star 1999; Barnes & Hannah 2001; Suchman 1994) but this has not previously been applied to fuel poverty. In the past, different models that contribute towards understanding energy have been critiqued but rarely within a framework of who is affected, inequalities or justice (see Sovacool 2014 for a review). Being critical

of the definition allows a view on the classification work and modelling of fuel poverty that has yet to be the subject of academic research.

The third contribution of the thesis is the inclusion of the perspective of older fuel poor households themselves. A substantial body of research on older people and fuel poverty predominantly uses a quantitative paradigm to focus on patterns of mortality and morbidity (Rudge & Gilchrist 2005; Wilkinson et al. 2004; Healy & Clinch 2004) with relatively little work on the perceptions and experience of being fuel poor (O'Neill et al. 2006; Wright 2004; Harrington et al. 2005; Walker et al. 2014). There is an ongoing need for research that seeks to understand what it means to be faced with high energy costs in older age, as well as the challenges involved in helping people to improve their current situation. This thesis adds to the small number of studies that have included analysis of older people struggling with fuel poverty in England (Wright 2004; Adams & White 2006; O'Neill et al. 2006; Burholt & G Windle 2006), especially under the current conditions of rising energy prices and austerity measures in the UK. By exploring the rich insights of those living with fuel poverty, space is given to judgement and evaluation of how older people experience and cope with their situation. Listening to the fuel poor opens up the discussion of how vulnerability and ageing of certain social groups is configured within our understanding of the nature of the problem and how interventions are addressing an issue of social and environmental justice (see Walker & Day 2012).

The fourth contribution of the thesis is the account and analysis of the work of three organisations in England. Evaluation of national interventions has already been extensively researched (see Sovacool 2013 for an overview) but little has been done looking at locally conceived, managed and administered schemes to tackle fuel poverty (Sheldrick & Macgill 1988; Beardmore & Morris 2011; Roberts & Baker 2006; Morris 2010). Previous literature lacks critique of not only what is offered by local schemes but also how the organisations that deliver them operate. This moves beyond examining their role in delivering schemes alone to look at how processes and procedures are used by organisations to tackle fuel poverty, beyond the bounds of scheme X or scheme Y.

1.5. The thesis outline

The thesis has 7 chapters in total.

Following the current introductory chapter, **Chapter Two** will consider what is already understand of the response to and consequences of the struggle to afford energy with a particular focus in this on the experiences of older people. Questions will be explored of how energy prices, energy efficiency and household income are

seen to be the three interacting causes of this struggle. To finish I will consider how different theoretical perspectives can create space to ask questions of what understandings of fuel poverty exist and what knowledge they give priority to. Context characteristics surrounding energy demand in England must be made clear in order to comprehend the starting point from which I am asking questions of national and local interventions and the everyday experience of older people.

Chapter Three explains the research methodology and justifies the use of interviews and ethnographic observations to generate data related to policy, action and everyday experience of fuel poverty. The chapter argues for an appreciation of the analytical potential of exploring the work of multiple local organisations simultaneously rather than focusing on a single organisation, intervention or policy alone. It explains how ethnographic observations lead to data that encapsulates similarities and differences in how fuel poverty is tackled in three areas in England. Importantly, this chapter justifies the inclusion of the perspective of those experiencing fuel poverty, acknowledging the importance of exploring the presence of fuel poverty across different scales.

Chapter Four introduces and analyses the statistical way of knowing fuel poverty. This chapter conceptualises the making of fuel poverty as a form of category-making, through classification and how this becomes a device through its abstract, statistically constructed creation of who is (and is not) fuel poor and where they are to be found. In examining this as a form of classification, tensions and influences over the form of this way of knowing become visible. In this account, the creation of the category is trying to grapple with a multifaceted problem whilst trying to monitor progress and design action.

Chapter Five attends to the everyday domestic experience of English households, drawing on interviews with older people who have received help from organisations tackling fuel poverty. The capability approach (Sen 2010) is drawn on to consider how coping strategies raise questions about what are acceptable living conditions, how these judgements are made and how assistance can be provided to households when they do not themselves problematize their day to day situation.

Chapter Six considers how three local organisations use and deploy procedures and local categorisations of fuel poverty to identify real households rather than abstract and statistically defined ones. It is argued that the procedural way of knowing is distinct from both the statistical and the experiential but is linked to and sits between both of them. Through this it is argued that the procedural way of knowing is shaped by the experiential and the statistical ways of knowing through the forms of

knowledge that it draws upon whilst the understanding comes about through different procedures of classification and categorisation.

Chapter Seven concludes the thesis beginning with a summary of how the ways of knowing are characterised and the understandings that exist as a result. These findings are then discussed through an examination of the interrelations and interactions of the three ways, drawing out what implications this has for tackling fuel poverty.

Chapter 2: The struggle to afford adequate energy - Exploring the evidence

2.1. Introduction

Having introduced three ways of knowing the struggle to afford adequate energy in the introduction, this chapter provides a review of the academic literature and develops a foundation for the thesis, showing how it is positioned and how it contributes to existing knowledge. There is an ongoing need for research that seeks to understand what it means to be faced with high energy costs in older age, as well as the challenges involved in helping people to improve their current situation. This thesis seeks to add to the limited body of existing work. The foundations on which it builds is formed by work from sub-disciplines of geography, sociology and social policy on domestic energy studies, vulnerabilities and experiences of older people and conceptual/theoretical approaches to poverty.

First I discuss research literature that has been focused on the responses that households make when they are struggling to achieve adequate energy services in the home. I review the literature on the consequences and concerns of reducing energy use and the unaffordability of energy for different households.

The established explanations that are given for this struggle are then discussed to ask what it is about energy prices, energy efficiency and household income that can cause such consequences and how wider societal and political events in the UK shape the presence and dynamics of these three elements.

Finally informed by ideas of assemblage and the capability approach, empirical knowledge on consequences and explanations of fuel poverty is critiqued to form a foundation on which the analysis in this thesis will question what understandings of fuel poverty exist and how it is an issue of poverty and justice.

2.2. Responses to the struggle to afford adequate energy

Responses to and the consequences of fuel poverty have been problematized through reducing energy use and increasing spend on energy (Baker 2001). This section draws on existing literature that can illuminate how people deal with the

struggle and its consequences and specifically highlights areas where older age has been a distinctive factor.

2.2.1 Altering energy use

Provision of warmth has often been thought of as the sole concern of fuel poverty but this is not the case, with this service accounting for approximately half of average energy bills (Hills 2011). Nonetheless this focus on warmth is maintained in both academic and grey literature and the ways in which householders reduce their energy use. This could mean heating less space, heating for a smaller amount of time and maximising existing warmth. Less observed strategies for non-heating are turning off lights and using cooking appliances less often (Brunner et al. 2012; Anderson et al. 2012). Unsurprisingly households with residents at home for the majority of the day, whatever their age, are most likely to ration their energy use in general (Anderson et al. 2012).

A commonly acknowledged rationing strategy is to only heat one room or single area of the home (Brunner et al. 2012; Harrington et al. 2005). Bedrooms in particular, notably those of older people, are often not heated at all or not to the same temperatures as other parts of the home (Wright 2004; Day & Hitchings 2011). This can be due to beliefs of how cooler air is healthier and familiarity with cool bedrooms since childhood. Reducing or changing the amount of time that the heating is used has also been found to be a common strategy. Wright (2004) observed that older participants turned their heating off for a number of hours during the winter, despite believing that keeping warm was important.

Using less space heating may not be a decision to use less energy consistently over time, but instead a decision about what is happening in that immediate time period and what energy services are required. Research has revealed that residents may increase energy use when visitors are in the home (Tod et al. 2012; Day & Hitchings 2011). Heating practices when others are in the house can be quite different from the householders' usual patterns (Day & Hitchings 2011) though this conclusion highlights the difficulties in researching what people do versus what people say they do (Hitchings 2012). Nonetheless research makes a clear link with how older people feel about having a warm home being connected with hospitality, pride, social niceties and avoiding embarrassment (Day & Hitchings 2011; Hards 2013). Such associations mean that residents may feel that if they are unable to provide a warm home then they must restrict the social activities they take part in (Harrington et al. 2005; Anderson et al. 2012).

The conclusions above all come from research based in the UK, with the exception of Brunner et al's (2012) work in Austria, and involve relatively small sample sizes of 50 households or less for any semi-structured interviews. Due to the in-depth qualitative data required to come to conclusions on why people say they make certain decisions about their heating and energy consumption, it is unsurprising that sample sizes are of this size. However these conclusions cannot be said to be definitive for all socio-demographic groups and geographic contexts.

As well as directly using the heating system less, there are related strategies which focus on people's ability to maximise existing warmth. This can either involve informally modifying the fabric of the home or better warming and insulating of the body. Harrington et al. (2005:265) labelled these strategies as "changing one's fuel poverty status". These methods do not change whether a household is in or out of fuel poverty under a statistical definition (see Chapter 4), but they do have the potential to change how a person feels about their thermal comfort and how they perceive their level of hardship in achieving warmth. Older bodies become more sensitive to cold temperatures as they age (Wright 2004), meaning that new strategies may be employed as this happens. In line with oft-given advice, homes have been found to use thick curtains on the windows and draught excluders on doors. Other 'makeshift' strategies are to put adhesive tape and towels around gaps in windows (Harrington et al. 2005). For increased thermal comfort of the body, people wear additional layers and wear outdoor garments inside (Brunner et al. 2012; Day & Hitchings 2011). Day and Hitchings (2009) found more households in the low income category of their study took this strategy to keep warm than those in other, higher income categories. Staying in bed for longer or going to bed when they would not usually has also been reported and often links to times when the heating is turned off due to concerns of cost (Brunner et al. 2012; Gilbertson et al. 2006). By not exploring subjective aspects of makeshift strategies, understandings of fuel poverty are confined to elements that predominantly provide space heating rather than those that could be involved in 'adaptive thermal comfort' such as those that warm the body (Nicol et al. 2012).

A variety of studies have observed these strategies but not all have explored how residents *felt* about employing them. For older people Day and Hitchings (2009; 2011) found that wearing certain additional items such as blankets and hats can be stressful and uncomfortable, eliciting feelings of embarrassment and age stigma. Drawing on a range of gerontological literature, Day and Hitchings (2011) were able to explain why older people might be resistant to undertaking certain practices to keep warm in the winter. Harrington et al (2005) reported distinctions within their

study between those that felt comfortable wearing additional clothing and those that were fervently against the idea of having to do this. Informal methods that are about altering the building are less frequently linked to the resident's feelings or perspective. Access to other options due to income may affect people's outlook on the strategies that they choose to employ. An account of how residents reduce energy use and their own self-reflection on it develops a foundation of how the struggle is part of everyday life and how there are specific concerns for older people. There are still many questions that remain unanswered around the judgements that older people make of the way they are living and the non-energy aspects of their lives that struggling to afford energy affects.

2.2.2 Financial management and debt

If households do not or cannot reduce their energy consumption when they are struggling to afford their energy bills this puts pressure on how they are managing their finances more generally, particularly when energy prices are rising. Low income rather than over-spending is thought to be the cause (OFGEM 2008; Gibbons & Singler 2008). Energy bills are a changeable part of disposable household budgets and thus require some financial management.

Ineffective financial management can leave people vulnerable to large and unexpected household bills but to avoid this potentially stressful situation, people manage their finances in different ways. Some lead a frugal life to avoid struggling to pay their energy bills whilst others place priority on particular expenditures over others (Brunner et al. 2012; O'Neill et al. 2006). New research into what it means to experience fuel poverty suggests that it is instability of income that is important to householders (Middlemiss & Gillard 2015). This is not to say that this is the cause but this is an element that has been reported to shape the response of such a struggle. Using financial management skills may be stressful for some but for others they are normal and relatively accepted (Brunner et al. 2012; Middlemiss & Gillard 2015; Anderson et al. 2012). Young people and families with young children on low incomes are most at risk of large arrears of household bills (Harrington et al. 2005; O'Sullivan et al. 2011; Kempson et al. 2004). With nearly one in five families being in energy debt at some point, the impacts can mean children and families miss out on basic necessities such as hot meals and warm water for washing in (Williams et al., 2015).

However household finances are managed if the financial strain is too great, debt with energy suppliers is accrued. Latest figures show that at the end of 2014 approximately 1.4 million domestic electricity accounts and 1.2 million domestic gas

accounts were in debt in Great Britain (OFGEM 2015a). Around a third of these households were not repaying the debt i.e. no formal debt repayment plan had been arranged with the energy supplier. Approximately 40 per cent of all households in debt or arrears had not agreed a repayment plan. For households that had agreed to make repayments the average amount owing at the end of 2014 was £355 for electricity and £382 for gas whilst for households who were in arrears i.e. did not have a repayment plan in place, the average amount owing for electricity was £512 and £481 for gas (OFGEM 2015a). In 2014-15, Citizens Advice Bureau, a national advice agency, was contacted by over 30,000 people for help and support with energy debt, 76 per cent of which had multiple debts (Citizens Advice Bureau 2015). Prolonged energy debt has been due to an inability to pay rather than late payments (Boardman 1991). Such figures give a picture of the severity of the broad situation but little more. How householders in (income) poverty manage debt has received attention but the management of fuel debt and the processes involved in managing it have received attention less often.

One choice for those that are struggling financially is between expenditure on energy or food, dubbed ‘heat or eat’ where a choice is made between reducing spend on food or heating. Beatty et al (2014) concluded that severe cold weather periods led to reduced spending on food across those on a low income. Over a third of participants in another study had to reduce their spend on food in the previous 12 months to manage their financial situation (Anderson et al. 2012). The choice of ‘heat or eat’ can clearly reduce the quality and quantity of food that the household consumes and therefore has a significant negative impact on health such as poor nutrition and increased stress (Bhattacharya et al. 2003). The ‘heat or eat’ strategy is the most prevalently discussed of choices of expenditure, but there are other potential choices that people make that have received less recognition, such as using space heating less in order to save for holidays (Harrington et al. 2005).

Whether people have already accrued energy debt or are trying to manage their finances in a way that intends to avoid debt, self-disconnection from their energy supply can be undertaken. If a household has accrued a substantial amount of energy debt and it appears that they are unable to pay for it in a relatively short amount of time, their energy supplier may ask or force them to have a pre-payment meter (PPM) as an alternative to disconnection. Disconnections are generally avoided by suppliers where possible, especially with vulnerable groups. 41 households were disconnected because of non-payment of gas and 192 because of non-payment of electricity in 2014. This is a substantial decline from 2013 when there were 556 electricity disconnections and 84 gas disconnections (OFGEM 2015a).

Instead prepayment metering works so that a certain portion of the money put on to the account is taken off each time to pay back the debt and the household no longer has the ability to accrue any further debt. The presence of a PPM means that the property's access to energy can be stopped or limited by the amount in the account and/or at the choice of the residents. Self-disconnecting from energy is a significant consequence of this struggle.

As energy expenditure is an essential part of the household bills and thus the disposable household budget, its affordability is a key component to understanding how different households deal with achieving access to adequate energy services.

2.3 Consequences for welfare

So far I have discussed the range of potential responses to struggling to afford adequate energy but as mentioned before, concerns of health are a strong motivator for why this struggle is important, particularly for older people. The potential risks caused by low temperatures are the core of concerns about fuel poverty, at their worst resulting in excess winter deaths (as discussed in Chapter 1). Expert medical knowledge is a significant form of evidence here but not all the consequences discussed above are covered extensively by this evidence. A recent review of the way in which fuel poverty is officially defined (Hills 2011) took stock of the existing evidence on health. It succinctly summed up the reasons that older people are vulnerable to cold-related mortality as:

i) Likely to lead more sedentary lifestyles
ii) Higher risk of higher blood pressure and coagulation
iii) More likely not to feel thermal discomfort until the temperatures are lower due to peripheral temperature perception deterioration

These vulnerabilities and the fact that older people often have existing health problems shape the way in which the consequences of older people living in fuel poverty are considered and compared with other groups of the fuel poor population.

Cold-related respiratory problems occur at temperatures below 16^0C as the cold air affects normal function of the respiratory tract (Dear et al. 2011). Humidity levels, damp and mould are also found to affect the respiratory tract. Below 12^0C, circulatory disease occurs as the low temperatures cause blood vessels to narrow, blood viscosity and blood pressure to increase (Hills 2011). This can result in an increase in the risk of strokes and heart attacks (Dear et al. 2011). The low indoor temperatures are a concern when heating is being rationed over time but rationing heating over the home space is also problematic because a significant air temperature differential, such as when moving between rooms, can cause stress to the respiratory system

especially for older people (Wright 2004). Moving to the bedroom at bedtime, for example, from warmer areas to a cooler bedroom raises health concerns.

The World Health Organisation put together temperature guidelines in 1987 that an indoor temperature range between 18^0C and 24^0C posed no risk to health (Hills 2011). However the exact evidence behind the temperatures that they recommended is unclear and potentially unsubstantiated (Ormandy & Ezratty 2012).

Whilst these general concepts have long been accepted by most, the exact details of consequences of indoor temperatures on health have recently been questioned. Public Health England recently reviewed their guidelines and whilst noting that the evidence is not extensive, they have now recommended that 18^0C across all rooms in the house poses “little risk to a sedentary person wearing normal clothing” (Public Health England 2014a). They stress however that this room temperature threshold is especially important for those over 65 years old or with pre-existing health conditions and recommend that it is sustained overnight as well as during the days for these groups (implying keeping the heating system on overnight during cold weather). Questioning of the widely used and seemingly accepted WHO temperature standards may be the first of many critiques, as the status of the evidence behind these and similar classifications is made more explicit and critically examined (see Ormandy and Ezratty, 2012).

Living at low temperatures is not just about the effect of the indoor temperature on the residents in the room but humidity can encourage mould growth, which can exacerbate or lead to respiratory illness. Within a large scale survey of housing conditions in England, Harris et al (2010) found that independent of financial circumstances, poor health (both mental and physical) could be predicted by those living in a cold and damp home. Housing quality and financial problems can be relatively important in explaining the health of older residents in New Zealand (Howden-Chapman et al., 2011). Damp conditions are a common risk to health but are not just associated with physical health but depression and worry was found to be higher in damp homes (Khanom 2000).

Stress caused by living at low levels of thermal comfort can reduce well-being and may lead to mental health issues such as anxiety and depression (Hills 2011; Dear et al. 2011; Green & Gilbertson 2008). To this end, one study (Harris et al. 2010) suggested a direct relationship between the presence of mental health illness and cold or damp housing but the exact explanation of whether cold homes cause an increased risk of mental health problems or whether having a mental health problem increases the risk of living in a cold home is unclear (Hills 2011). Lowry (1989) highlighted the psychological strain a resident might feel from needing to scrape

mould off the walls of their home. In the grey literature there is evidence of people taking drastic methods to deal with the stress of damp and mould such as painting the walls black so that you can't see it (Preston 2015).

Debt has been reported to lead to stress and loss of self-esteem, with older households having a particular fear of debt (Gibbons & Singler 2008; O'Neill et al. 2006; Baker 2001). Literature on living with reduced warmth predominantly uses subjective measures of how the home was heated and how affordable it is rather than recorded temperatures or actual energy bills (Hills 2011). This has wider impacts with increased stress due to household debt contributing to increased strain on relationships within households (Harris et al. 2010). Despite this evidence, there is relatively little literature on mental health impacts specifically focused on older people.

2.4 Explanations of the phenomenon

So far I have discussed the struggle of affording adequate energy in the home, widely labeled as 'fuel poverty', but I have yet to explain in detail what has been seen to be at the root of this struggle. As has been made clear from the research questions, questioning how we know this phenomenon 'fuel poverty' is at the core of my research, and I have argued that there are co-existing 'ways of knowing' to be investigated. However, there are certain core understandings of the broad dimensions of why households struggle to afford adequate energy in the UK that underpin what follows throughout the thesis. I will therefore discuss the three elements that are widely agreed as the main drivers of fuel poverty but also go beyond this to think about how the current situation in the UK shapes the presence and dynamics of these three elements: the cost of energy, household income and energy efficiency of the home. To discuss these elements without thinking about how wider societal and political events play a part in their existence would be insufficient. The following section refers to fuel poverty as understood in a UK and developed world context. Similar discussions take place around a slightly different problem of energy poverty, more commonly used to refer to areas where initial access to energy is the issue of importance (see Bouzarovski & Petrova 2015 for a full discussion). Whilst previously debates have been careful to distinguish between the two terms carefully, there are important similarities that may be drawn between them and can provide useful knowledge for studies of both terms (Bouzarovski & Petrova 2015).

'Fuel poverty' in the UK can be attributed to three root determinants/causes are energy prices, household income and energy efficiency of the house (Hills 2011). I will make the case in this next section for why these factors are intrinsic to understanding the broader struggle to afford adequate energy services.

Fuel poverty was first recognised politically in the late 1990s with a change in government to the Labour party - although campaigners recognised the issue long before this (Boardman 2010). The introduction of the Warm Homes Energy Conservation Act in 2000 and the UK Fuel Poverty Strategy 2001 formalised a detailed definition of this phrase that allowed it to be measured, monitored and targets set, as will be discussed at greater length in chapter 4. This definition put together the three elements of income poverty, energy efficiency and fuel prices, generating an overall trend in the scale of the fuel poverty problem as shown in Figure 2.1. Reporting of the statistical figures used in Figure 2.1 is crucial as it is used by government and other organisations to justify efforts to tackle fuel poverty.

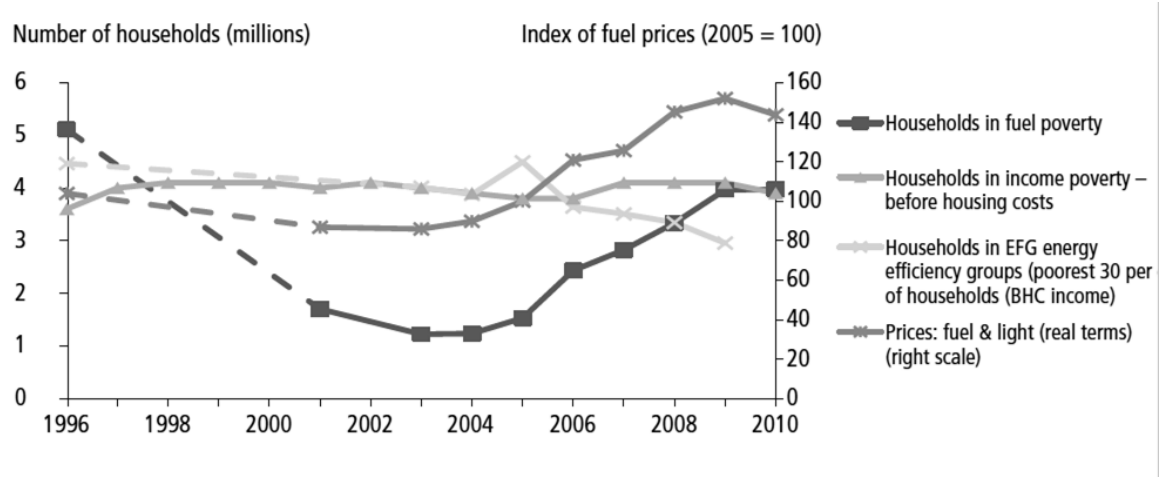


Figure 2.1 Fuel poverty, income poverty, energy efficiency and fuel prices, 1996 – 2010, England (except prices – UK data) Source: Hills (2011, p14)

But understanding how the three drivers affect or are part of the struggle is not as straightforward as a + b + c = the phenomenon. So what causes this struggle? What is it about energy prices, energy efficiency of a home and household income that causes such concern and hardship? The following sections will explain how each element is part of the cause.

2.4.1 Energy prices

Energy price rises have been substantial over the last decade and have been a focus when placing blame for fuel poverty in the past. As shown in figure 2.2 energy prices have risen substantially in recent years.

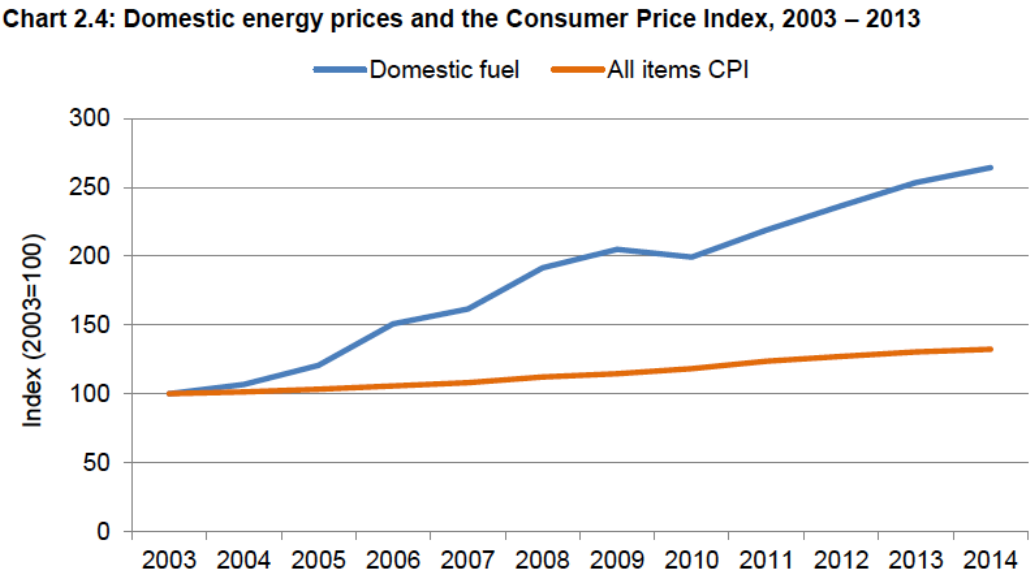


Figure 2.2. Retail price of domestic energy compared to the Consumer Prices Index (the prices of a 'typical' basket of goods and services) Source: DECC (2015a)

In 2014, average household expenditure on fuel and power reached its highest levels since 2001 (Office for National Statistics 2014). Whilst global energy price increases directly affect UK gas and electricity prices, there is a question of how justified it is to pass on costs to those who pay the bills, the householders. Over the last decade, the margins of some parts of the energy system have substantially increased (Boardman 2010) and those costs of government-enforced schemes that utility companies have to participate in are passed on to the consumer, though the exact distribution of the recouping of such costs is debated (Preston et al. 2010). In 2014, an average of 8-10% an energy bill was the cost of so-called 'green policies' (OFGEM 2015b). This begins to illustrate that the price consumers' pay for energy is complex and there are other factors, beyond the wholesale price of an energy source, in how much households are billed for energy.

The cost of energy is also a direct result of the payment method and the technology that facilitates payment, it is about how people pay as well as how much they consume. The choices of payment are direct debit, standard credit where a bill is paid on receipt and pre-payment metering (PPM). The price consumers' pay varies according to these because the energy supplier is passing on the cost of providing these different payment methods. Although the true cost to the suppliers of this method is argued over (Boardman 2010). Having a PPM is not synonymous with being fuel poor but the rate of fuel poverty was 19% for PPM, 16% for standard credit and 7% for direct debit (Department of Energy & Climate Change 2015a).

Nonetheless, it can be a choice (of sorts) for many householders to use pre-payment metering. In 2014, approximately 40% of newly installed PPMs were

installed for reasons other than debt (OFGEM 2014). Lack of trust in direct debit and standard credit can mean that prepayment meters is a preferred option (Mummery & Reilly 2010). It is also a way people are able to control how much they spend and when they spend it. People can also be paying by prepayment because they do not have a bank account, through choice of refusal, and so direct debit and standard credit are not possible. Low quality accommodation with prepayment meters already installed may also be the only choice due to financial and geographical restrictions. These elements go someway to understanding how the cost of energy has potential to cause hardship and concern over the affordability of adequate energy.

2.4.2 Energy efficiency of the home

There is more to how much householders pay for energy than simply the unit price. The energy a household is billed for depends on their needs and preferences, as mentioned in section 2.2, but also the energy efficiency of the home. This influences the struggle to afford adequate energy in a different way to fuel prices and household income as its impact is more static and permanent, requires capital expenditure to alter its role in why it causes hardship. To improve the energy efficiency of a house is to make a permanent, irreversible change to the housing stock that directly changes the lives of the current and future fuel poor.

An energy inefficient house will require more energy and thus have higher energy bills than an energy efficient house. The most common way that this is expressed is through the Standard Assessment Procedure (SAP) which is a scale of 1 to 100 designed to assess a building's theoretical energy costs irrespective of the building occupants (Hills 2011). SAP points are the basis behind the widely used A to G band rating of properties with lower points and later letters signifying energy inefficient properties. A house of SAP band A had a median equivalised fuel bill of £917 a year while an average house of band F/G was £2153 in 2012 (Department of Energy & Climate Change 2015a). Details of the assumptions of what level of energy is required in connection with how fuel poverty is modelled are given in Chapter 4 (section 4.3).

The overall energy efficiency of the UK housing stock has increased from an average of 17.6 in 1970 to 54.7 SAP points in 2010 (Palmer & Cooper 2013). This has been done through uptake of central heating systems, efficiency boilers, improved window glazing and insulation (Boardman 2010). By 2011 central heating existed in over 90% of homes compared to 25% in 1970. The type of fuel has also

changed with the majority of centrally heated homes using mains gas (91%) compared with 40% in 1970 (Palmer & Cooper 2013).

In the most recent legislation the UK government made a target to ensure that fuel poor homes achieve a minimum energy efficiency rating of SAP band C by 2030, as they believe that energy efficiency should be made a priority in tackling the problem (Department of Energy & Climate Change 2015b). SAP band C for hard to treat homes and band B for all others is regarded as a level that would "fuel poverty proof homes" (Guertler and Preston, 2009). At the moment it's estimated that 95% of fuel poor households live in Band D or below (Department of Energy & Climate Change 2015a). Improving the energy efficiency of a house does not necessarily guarantee certain savings and benefits but it does allow residents to have the *potential* for improved indoor environment and decreased energy costs.

In the past there have been policies to improve the energy efficiency of the housing stock to little or no cost to the household. These policies have been predominantly low hanging fruit for cost and ease of installation such as putting in loft insulation where none previously existed and filling cavity walls with insulation (Hamilton et al. 2015). The Warm Front scheme was part of the effort to improve the English housing stock and ran for 8 years until 2013 (Department of Energy & Climate Change & Carillion 2013). Similar policies ran in Wales, the Nest programme, and Scotland, the Energy Assistance Package scheme.

But there have been improvements in this realm recently. The English government launched the Green Deal and the Energy Company Obligation schemes in 2011 to alleviate the need for capital expenditure for energy efficiency measures and allow residents to make changes to their home and see the benefits. The schemes have not been taken up by as many households as was originally planned as all the processes needed to use the scheme were not ready on time and consumers saw considerable disadvantages to the scheme (Marchand et al. 2015). Measures have been installed in just over 1 million houses, as of the most recent statistics released in March 2015 (Department of Energy & Climate Change & Office of National Statistics 2015).

Energy efficiency being a clear route for 'fuel poverty proofing' much of the UK housing stock, the expense required, whatever source it comes from, is substantial. It was estimated that it would cost just over £60 billion to make the strongest energy efficiency improvements required to lift people out of fuel poverty (Guertler & Preston 2009). More on the different programmes and policies that have and are currently tackling fuel poverty are discussed in Chapters 4 and 6.

2.4.3 Household income

Regardless of the energy efficiency of a house and energy prices, a household needs to purchase energy; it is not an optional or luxury item. When Boardman devised a fuel poverty definition in 1991 it was based on the fact that average expenditure on domestic energy was 5 per cent and the 30 per cent lowest income households spent 10 per cent and was therefore 'affordable' in some sense (Boardman 2010). It seems straightforward that if income increases then the proportion that a household spends on energy will decrease and the household budget will still be available for other purchase. But there are other things going on. Housing costs vary widely across England and this expenditure can have a major impact on the disposable income available. As previously discussed there is also a 'poverty premium' as those on PPMs are typically lower income households but this payment method's tariff is more expensive than other options and the costs of having a prepayment meter removed are high and often not feasible for these households (Hills 2012). Also where the government enforces energy companies to deliver certain policies, it is expected that the costs will be recouped through higher prices on households. But as energy bills make up a large portion of income for lower income households, this funding of policies is relatively regressive (Hills 2012).

There have been wider changes that have influenced household income in recent years with an economic downturn and significant welfare reform. Median household income has declined; it was £500 lower in 2013/14 than in 2007/8. Over the longer term, since 1977, average disposable income has grown slower for the poorest fifth of households than the richest fifth (Office for National Statistics 2015).

Welfare reforms have resulted in cuts to housing benefit, council tax benefit, disability benefit and overall benefit caps and credits. Significant cuts that affect those in social housing, such as the under-occupancy charge, have forced some tenants to cut back on food and energy (Lambie-Mumford et al. 2016). Since welfare reform began, housing associations report energy costs being an increasing cause of poverty (Power et al. 2014).

There are great concerns that the impacts of welfare reform on fuel poverty are not thoroughly understood but its impact cannot be underestimated, as the Fuel Poverty Advisory Group has warned (Fuel Poverty Advisory Group 2013). The UK employment rate is high but since the recession, earnings have not kept rising at the same pace. Half of all people in poverty were in a working family and the total number of people in poverty rose by 2 per cent between 2002 and 2012/13 (Joseph Rowntree Foundation 2015).

But it is known that the economic downturn and austerity has not affected all households equally. Lower income deciles are largely recipients of state benefits and housing related income whilst higher deciles rely on earnings, which saw much smaller rise and fall (Office for National Statistics 2015).

Broadly income inequality has remained unchanged in recent years (Office for National Statistics 2015). There has been real term increases in income from private pensions and annuities in recent years though taxes and benefits have had a redistributive effect for retired households, predominantly due to state pension changes. The median disposable income for retired households has increased more (£1400 in real terms) for these households than non-retired households since 2007/8 (Office for National Statistics 2015). Recent governments have been reluctant to cut benefits for older people with this group being the least affected by benefit cuts (Hills et al. 2013) despite being significant recipients of total state benefits and therefore being a likely place to look for savings.

However, during the changing economic climate, low income households are less resilient than the general population with often a reliance on short-term financial solutions to get by and make ends meet (Ben-Galim & Lanning 2010).

Any policy or scheme that increases income has the potential to improve the lives of the fuel poor. But there are three policies that are at least partially aimed at increasing the income of households with high energy costs: the Winter Fuel Payment, Warm Home Discount and Cold Weather payment. The Winter Fuel Payment is a £100 to £300 payment received every winter by all of the population over the age of 62, irrespective of their income (UK Government 2015b). Those over the age of 80, receive £300 rather than £200. Cold Weather Payment is a £25 payment that goes to those over 65 years old (and other groups deemed vulnerable such as those claiming benefits for being a household with children under 5 and those with a disability) when the weather is particularly cold for a number of consecutive days during the winter (UK Government 2015a). A similar scheme, Warm Home Discount, is a rebate of £125 on your electricity bill received during the winter period. The recipients of this are divided into two categories: the core group and the broader group. Those in the core group are those on the Guarantee credit element of Pension Credit and therefore automatically receive it whilst those in the broader group, those considered to be vulnerable, have to apply to their energy supplier on a first come first serve basis.

How household income affects the struggle to afford adequate energy is complex and so making purposeful changes that see reduction in the numbers in fuel poverty is not straightforward. Nonetheless because disposable income in relation to

fuel poverty is so intrinsic to a system of support through state benefits it is also one of the aspects that has consistently seen effort aimed to tackle fuel poverty through increasing available income.

Having reviewed what existing literature sees as the causes and consequences of the struggle to afford adequate energy, we can get a good sense of both why this is an important subject and the major themes of its investigation. But the discussion so far has only highlighted the more empirical, applied base through which fuel poverty is understood. There is also more conceptual and theoretically-informed work which has insights to contribute and which have provided a foundation for the thesis.

2.5 Engaging with theoretical perspectives on fuel poverty

This section will sketch out various elements of more theoretical work that informs my framework of analysis, and my approach to undertaking the thesis research. By developing connections between empirical research and theoretical discussions, the purpose and findings of this thesis are placed in a broader intellectual context, making new linkages and insights that would not be possible without engagement with social theory. This is important as arguably both research and policy needs to think beyond the language and concepts traditionally associated with fuel poverty in order to advance further (Day & Walker 2013).

Any investigation into the social world requires consideration of ontological and epistemological debates. How and why research examines a specific topic should be scrutinised in the context of the (rest of the) social world it is part of. What is taken to be ‘fact’ or ‘truth’ changes depending on the approach taken towards how knowledge is formed. There are many different perspectives on what we are trying to find out, or ‘discover’ in the world ‘out there’ such as offered by Rorty and Foucault (Clark 2003), with some suggesting we cannot separate the world and language because they are so intrinsically connected (Allen 2003). The creation of ‘truth’ is bound up in a way that can allow space for the researcher to generate, produce, create and describe the world as they feel is appropriate.

When thinking about the world that research ‘sees’ or ‘creates’, it is not only language and writing that needs consideration but also the form that the ‘truth’ of the world might take. There have been debates over how actions create realities and how research can produce certain realities of the world (Law 2004).This is to say that the way that research is carried out can influence the thing it ‘sees’. Lofland et al (2006) adds to this discussion from a “subtle realist” tradition (Hammersley 1992 cited in Lofland et al, 2006) where it is not presumed that “the reality depicted is an exact or perfect representation in the sense of being completely correspondent to the one

examined" (Lofland et al 2006: 169). Traditionally, there is an assumption that in order to get the 'correct' results, a set of clearly laid out methodological steps must be followed. However John Law (2004) argues that it is not the methodology that causes this assumption but the presence of such an assumption that the method is accurate or true can causes problems with understanding what claims research can make. These normativities work under the assumption that the world can be sorted into particular processes that research can then identify. But the world cannot always be understood by sorting it into an order (Law 2004). The causes of fuel poverty are 'messy' in this very sense, with the apparent 'solutions' reflecting this also. My approach of examining three different ways of knowing fuel poverty could be seen as more 'ordering', however this framework is intended to give space to the diversity and messiness *within* and between different understandings of fuel poverty rather than taking any one understanding for granted.

Domestic energy has been studied through many perspectives such as social practices, STS, social norms and energy cultures (see Sovacool (2014) for a recent review of existing research on energy in social science) but there are few studies that reflect upon the key concepts and conceptual frameworks that they are using, focusing instead on empirical and practical understandings of fuel poverty specifically. There are a few exceptions. Harrison and Popke (2011) were the first to use the notion of 'assemblage' through their empirical work on US energy poverty with Day and Walker (2013) taking this further. Work using capabilities and practice theory has also been explored (Walker 2013).

Assemblage has become a recent focus in a variety of disciplines from art history, to philosophy to geography (Anderson & McFarlane 2011). Broadly, this can understood as part of a shift from dualistic to relational ontological thinking in human geography (Dewsbury 2011). It draws on ideas from Deleuze and Guattari's notion of agencement as well as ANT's discussions of 'assembling the associations' and creating networks of actants, to use Latour's word (McFarlane 2011). It is not a coherent theory (Day & Walker 2013), it cannot be said to be one clear thing. McFarlane (McFarlane 2011) calls it an orientation, a concept, an imaginary and a process, while Dewsbury (2011) discusses it as a thinking tool (i.e. one is an assemblage thinker), as a collection of elements and as objects themselves. All emphasising that it does not have to be only one of these at a time. Assemblage theory sets out to bring different elements together on their relations rather than their different properties, meaning that attention is focused on the possibility of invention and questioning how a formation is functioning as a collective (McFarlane 2011; Allen 2003).

Fuel poverty is a multidimensional problem, produced through the coming together of different material, social and economic elements in particular settings. Assemblage-thinking can help make the relations and 'actants' involved in the surrounding systems more visible. The diversity of people many would consider to be potentially fuel poor and the variety in their situations, histories and circumstances mean that a diversity of actors, processes and interactions are involved. What characterises fuel poverty, Day and Walker (2013) argue, is its immediate involvement of both human and non-human objects at all spatial scales. In the home, a resident is managing their energy consumption through their heating system, lighting and energy-consuming appliances whilst also coping with their, and potentially other, residents needs, undertaking all of these at a financial cost and in relation to changing external circumstances. Day and Walker (2013) argue that Harrison and Popke (2011) do not embrace the characteristics of assemblage thinking to the fullest extent that they could. They do not take the roles of agency and dynamics far enough to capture the essential characteristics of the issue as evolving and emerging in time and space.

While not a key part of the framework of this thesis, assemblage thinking has informed my research design and enabled the interpretation of empirical data in more creative terms by encouraging elements with different properties (human and non-human) to be seen in one assemblage that is part of the struggle of fuel poverty.

The link between (income) poverty and fuel poverty is one to be treated with care but as will become apparent, conceptual discussions of poverty can and have been useful for thinking about the concept of fuel poverty. Models of poverty that include well-being rather than economic proxies alone are described as 'thick' rather than 'thin', of which the capability approach is one (Lister 2004). Under this model, "poverty must be seen as the deprivation of basic capabilities" (Sen, 1999, p87). Initially, this approach was used by Sen (1981) in his investigations of famine and starvation. The focus is shifted in his thinking away from actual income and associated proxies through two concepts: functionings and capabilities. Capabilities refer to what a person can do or be i.e. the choices available to them, while functionings refer to what a person actually manages to do (Lister 2004). Income then becomes a means to an end rather than the end goal as importance lies with a person's ability to convert means into achievements that they value. This means that those in poverty lack the necessary capabilities to access the functionings for a worthwhile life.

There are variations in its formation depending on the kind of theory and the type of application that it is being used for (Robeyns 2006). The approach is not a

theory of inequality as, while inequality is fundamentally related to poverty, redistribution of wealth may reduce inequality but not reduce the perception of poverty to the same extent (Sen 1981). Since Sen's work pioneering the approach, many other authors have taken it up and suggested their own variants, Nussbaum (2011) and Alkire (2002) being just two of these. Nussbaum (2011) labels her approach as a partial theory of social justice but acknowledges that "it does not purport to solve all distributional problems; it just specifies a rather ample social minimum" (p40). This highlights a difference between Sen and Nussbaum; Nussbaum has specified a list of Central Capabilities whilst Sen advocates against doing so because he does not think it is possible to rank one capability against another. The consideration of what the capability approach is in each instance is an important one that needs thorough justification based on the context of its application.

But more specifically what does this theoretical framing mean for what fuel poverty actually is? Where does this position energy and what does it tell us about what people in fuel poverty are struggling with?

The current definition(s) of fuel poverty – as discussed in detail in Chapter 4 - is not about how much a household actually spends on their domestic energy bills but about how much they would, hypothetically, need to spend in order to achieve adequate indoor temperatures. This hypothetical nature means that a household could be (choosing to) significantly under or over spending on their energy bills and/or under or over heating their home; without any connection to whether they are in fuel poverty, according to this statistical definition at least. Whilst there are number of reasons why the statistical definition takes this form, the fact that it does brings the idea of individual lifestyle choices into the picture in a very different way when considered alongside the experiential representation of fuel poverty. Freedom to choose is a core concept of capability approaches, placing agency as the ability to act on what matters to a person as central importance. Residents and the organisations cannot ignore this freedom and role of agency in everyday life and it becomes part of negotiating the everyday concerns of the fuel poor. Incorporating freedom to choose into a framework means raising questions of what norms and expectations exist in today's homes around energy services. There are two reasons why this is valuable for the thesis. Firstly, in carrying this forward, the thesis reflects a need to position the person and their values as important particularly to the experiential way of knowing that is focus of chapter 5. Secondly, it opens up consideration of the potential tensions and negotiations the procedural and experiential ways of knowing as the weight given to freedom to choose varies. As will be further discussed in Chapter 4, the statistical way of knowing allows for this

freedom by including *hypothetical* energy costs as a unit of analysis rather the actual attainment of a certain indoor environment.

Sen's work has long been critiqued for not pinning down details of the approach, some of which he has justified as they are and others of which he has given more details in his later works (see Sen 2010). For its use in this thesis this has specific advantages. Firstly, when applying the approach to a new topic, like fuel poverty, its flexibility allows it to be applied in a way that is sensitive to the reality of the case at hand. As Nussbaum (2011) suggests, the approach cannot resolve *all* issues and evaluate *all* aspects of a situation; other arrangements, such as a well-functioning democratic political system, can take on roles the approach is not able to. Secondly, space is left for discussion of certain details and variations in the empirical application of the approach. One example of a mechanism within the approach that needs discussing and specifying would be individual choice and freedom in terms of its relation to other forces such as social processes as mentioned above and discussed further in a similar context of inequalities in domestic energy consumption by Walker (2013).

Previously I emphasised that the services that energy provides is what is important, consumption is only instrumental, but in taking forward the capability approach, the focus shifts to the particular capabilities that energy services provide people with (Walker, 2013). Fuel poverty, in this approach, is about an individual's (in)ability to convert income into energy services, which is then important to realising certain key capabilities and functionings such as bodily health, effective education and social interaction through being a comfortable, healthy environment. It is not to deny that resources are important but to ultimately say that they are not the only aspect of importance and that functionings and capabilities are the ultimate normative concern (Robeyns 2005). Contrary to what medical evidence may suggest, the argument here is that it is people's choice to not heat their home adequately but where the (in)justice lies is within people's access to that choice i.e. whether people have the capability to keep warm and therefore achieve things that they value doing or being. This focus on the capabilities that energy services provide people with will be taken further in Chapter 5.

2.6 Conclusions

In this chapter I have discussed what the body of existing literature has to say about the response to and consequences of the struggle to afford energy with a particular focus in this on the experiences of older people. I have discussed how energy prices, energy efficiency and household income are seen to be the three

interacting causes of this struggle. To finish I have considered how different theoretical perspectives can create space to ask questions about the understandings of fuel poverty that exist and what knowledges they give priority to.

In pursuing this exploration of other literature two things have become clear. First, there is importance in being open to the different knowledges and rationalities that are embedded in the struggle to afford adequate warmth. Health expertise may judge what constitute harmful thermal conditions (Dear et al. 2011; Public Health England 2014a; Ormandy & Ezratty 2012) but how people trying to stay warm may perceive questions of affordability or harm can differ, drawing on other forms of knowledge and making judgements and evaluations in their own terms.

Secondly, as the recent application of assemblage thinking makes clear conceptually, many different factors contribute to the problem of affordable warmth and people's situations will be variable and diverse. This is not just because 'old age' is very heterogeneous, but also because fuel poverty is a multidimensional phenomenon, produced through the coming together of different material, social and economic elements in particular settings.

In summary, this chapter has brought together relevant ideas from the existing literature on investigating fuel poverty through theoretical engagement and empirical literature on domestic energy, fuel poverty and ageing. This work has highlighted that whilst much research has been undertaken in these areas, a theoretically-engaged study focusing on how different ways of knowing can shed light on the characteristics of the struggle to afford adequate energy, the causes of the problem and how theoretical approaches can be useful to conceptualise what the problem is. This discussion does not exhaust the ways in which existing literature feeds into the thesis. Concepts of classification and category making figure centrally in the setting up and analysis of Chapter 4. The literature on fuel poverty and ageing will be discussed in more detail in Chapter 5 along with further engagement with capability theory. In Chapter 6 local organisations as intermediaries are the focus of the chapter, examining the operations of the work they undertake in homes in their area and how they operate.

Chapter 3: Investigating fuel poverty through case studies

3.1 Introduction

It is clear that a struggle with access to adequate energy services is not just related to the technology in the home or the income available. Instead the complexities of social life are involved and, as explained in the previous chapter, notions of assemblage have been used to characterise the complexity and dynamics of what contributes to constituting fuel poverty. The focus on three different ways of knowing is an attempt to examine interactions and interrelations between elements of what fuel poverty is currently, in order to see connections and tensions created by their existence in the English context. For this reason, this chapter details the multidimensional, mixed method approach I have taken to exploring fuel poverty and older age that is used to characterise fuel poverty and the understandings that different ways of knowing put forward. This approach also felt appropriate for the importance I place on producing work that can empower and improve the lives of the fuel poor.

As has been made clear, fuel poverty is not solely about energy but similar questions of the way in which energy is configured in home life have been raised by studies on domestic energy consumption. This has raised interest in coping strategies employed (Anderson et al. 2010; Brunner et al. 2012; Gibbons & Singler 2008; Harrington et al. 2005; O'Neill et al. 2006), the generational experience (O'Neill et al. 2006; Wright 2004), the view of the fuel poor themselves (Middlemiss & Gillard 2015; Burholt & Gill Windle 2006; Walker et al. 2014; De Haro & Koslowski 2013) the technologies used (Wrapson & Devine-Wright 2014; Walker 2008) and the links to decarbonisation and sustainability (Powells 2009; Jenkins 2010). While these studies provide useful information on domestic energy consumption, to focus on what it means to be older and fuel poor requires a framework that is specific to these two aspects and does not tackle such questions without these aspects shaping the stages of research from the start.

Studies of poverty and gerontology can help to explain access to help and services (Moen 1978; Wenger 1993; Howse et al. 2004), living in poverty or deprivation (e.g. Shildrick & MacDonald 2013; Scharf et al. 2006) and experiences, identity and ageing (Minichiello et al. 2000; McHugh 2003).

The geographical scale of the organisations that are part of this research is also important as was explained in Chapter 1. Local community-based fuel poverty initiatives are not a new concept (e.g. Sheldrick & Macgill 1988; Ruston et al. 2010) but there has been a significant increase in the number of schemes, over the last decade or more, that adopt a local, community based approach to addressing fuel poverty typically involving multiple public, private and third sector actors. Scheme evaluations, both external and internal, have taken place on many of those with a local element such as Warm Zones (Liddell et al. 2011; Energy Saving Trust 2005) and Warm Front (Gilbertson et al. 2006; Critchley et al. 2007; National Audit Office 2009) and more specific localized schemes (Morris 2010; Moore 2012b). Most of the literature on how well schemes operate, whether they are national in scale or in one singular locality exists in the grey literature. How well fuel poverty initiatives are able to address the problem is still not clear (Preston 2013; Energy Bill Revolution & Association for the Conservation of Energy 2015). The importance of exploring fuel poverty at a local level has been advanced through better prediction at a local level (Roberts & Baker 2006; Baker et al. 2003) but many challenges remain. To look across three organisations operating under the same regime at the same time provides a valuable opportunity to draw out evaluative comments on how this ordinarily dispersed group of organisations operate in their local area and interact with other actors – householders, policy makers, funders and other community organisations.

The aim of the research is not to provide a representation of the wider population but to provide insight into some of the experiences of older fuel poor people, unpacking the details of everyday life that may not be explored in other research, in order to understand the rationale behind choices that are made. After detailing the ethnographic style observations undertaken with three local organisations in England, I explain how this led to semi-structured interviews with older residents over a winter period. With this laid out I explain how analysis was performed and how ethical considerations were handled.

3.2 Investigating the statistical way of knowing

To investigate the statistical way of knowing fuel poverty meant to examine the statistics that record and monitor fuel poverty and the information that explains their history and the decision and inputs that produce them. Initially it was thought that information on the decision about the measurement of fuel poverty through the production of the government's statistics would be found through interviews with those actively engaged with the use of statistics for policy. However, due to the

technical nature of the statistics, these scoping pilot interviews did not reveal the depth of information about the decisions behind how the statistical way of knowing is produced. For this reason it was decided that data on this way of knowing would be gathered by pursuing different avenues and sources.

With the changing landscape for how fuel poverty was statistically defined and the national policies in place to tackle fuel poverty, there was a wealth of material published over the duration of this research (2011 to 2015) detailing decisions and assumptions behind the statistical way of knowing fuel poverty. In order to contain the material that was included in this phase of the methodology, the material that was included in this 'methodology' for the statistical way of knowing was chosen on its direct relevance to national fuel poverty policy. In order for a document to be included, the following criteria was used:

- 2010 or later - as this is when fuel poverty definitions and policy changes were initially planned
- All documents that the government refer to for 'fuel poverty statistics'

The table 3.1 details the documents that were included in the approach and figure 3.1 sets the core documents over a timeline of the duration of this research.

Release date	Document title	Author
Oct-11	Fuel Poverty: The problem and its measurement	Hills, J.
Mar-12	Getting the measure of fuel poverty: final report of the Fuel Poverty Review	Hills, J.
May-12	Fuel poverty: annual report on statistics 2012	DECC
Sep-12	Fuel Poverty: Changing the Framework for Measurement - Taking forward the recommendations from the Hills Review	DECC
Nov-12	Setting the energy costs threshold	Moore, R and Association for the Conservation of Energy
May-13	Fuel poverty: annual report on statistics 2013	DECC
Jul-13	Fuel Poverty: a Framework for Future Action	Secretary of State for Energy and Climate Change
Jul-13	Fuel Poverty: a Framework for Future Action - Analytical Annex	DECC
Jun-14	Annual fuel poverty statistics report: 2014	DECC
Mar-15	Cutting the cost of keeping warm - a fuel poverty strategy for England	DECC
Mar-15	Government response to the consultation for a new fuel poverty strategy for England	DECC
May-15	Annual fuel poverty statistics report: 2015	DECC

Table 3.1 Documents included in statistical way of knowing methodology

Where possible, events relevant to the above documents were also attended, as follows:

* Launch of interim report of the Hills Fuel Poverty Review 19th October 2011

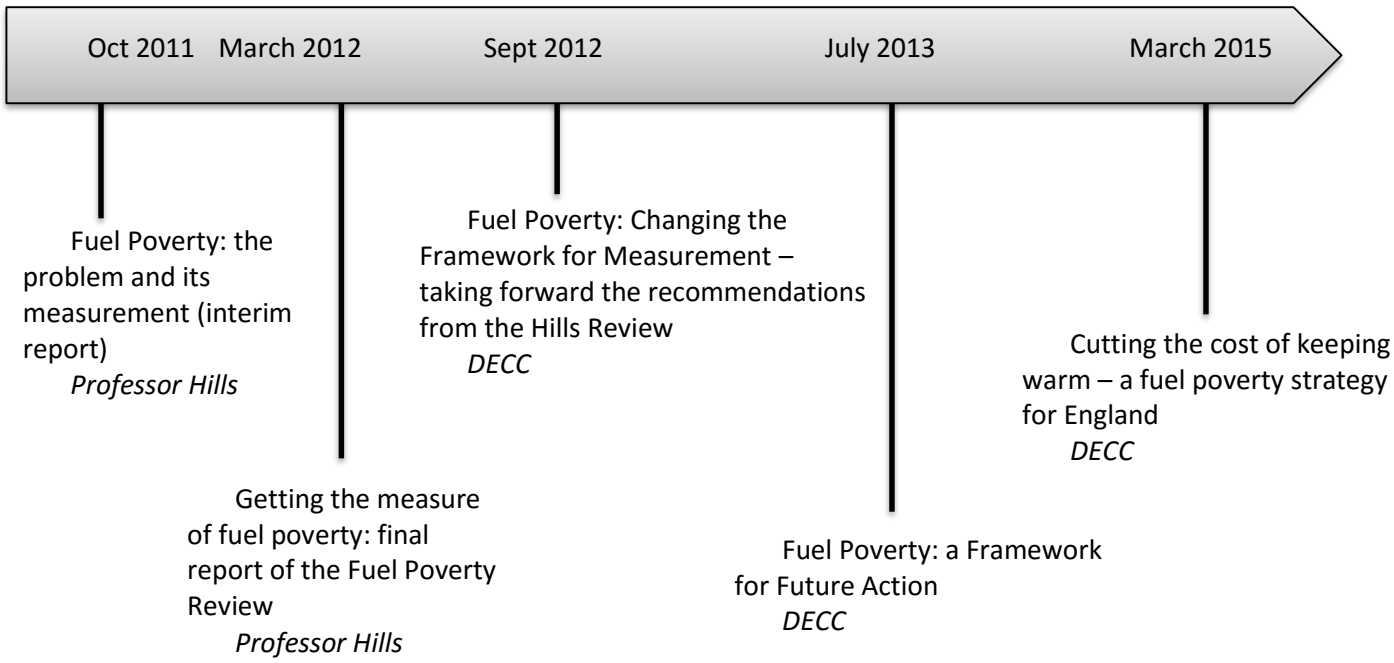
* Launch of the final report of the Hills Fuel Poverty Review 15th March 2012 London School of Economics

* Stakeholder Event Hills Fuel Poverty Review 18th July 2011

* Delivering the Green Deal 22nd March 2012 Central Hall Westminster

* Tackling Fuel Poverty in Vulnerable Households 28th March 2012 One Wimpole Street, London

Figure 3.1 Release of core documents on the statistical way of knowing



3.2 Selecting three case studies

3.2.1 Rationale

In order to examine the work of local organisations and to access residents a case study approach was taken. Case studies are a tool for understanding behaviour and processes in relation to a specific context (Hartley 1994). The use of examples to investigate and examine a situation where it can provide new insights is often underestimated compared to use of formal generalisation (Flyvbjerg 2006).

Using a number of case studies and ones with heterogeneous characteristics results in a more robust and strengthened set of data (Hakim 2000; Schofield 2002). The selection criteria (section 3.2.2) gathered local organisations where fuel poverty

was a priority but largely left other organisational characteristics unspecified and diverse. Fuel poverty is a multidimensional problem with direct links to a large range of location-specific variables such as housing types, presence of the gas network, weather conditions and rurality. These variables shape the solutions to fuel poverty that different organisations employ. The use of case studies allows geographical variables and considerations to be part of the data and its analysis.

Generalisation is not the intention of this research. Generalisability is a topic of discussion in the social sciences discipline and is a subject of divergence for qualitative research (Schofield 2002; Flyvbjerg 2006). In this PhD, a qualitative approach is not about producing standardised results but about providing detailed description of a situation, choosing a method that is appropriate for the problem of study, acknowledging my own perspective and interpretation as a researcher whilst also using techniques (such as multiple, heterogeneous case studies) to maintain consideration for internal validity and reliability (Schofield 2002; Flyvbjerg 2006).

Other methods such as surveys with different sampling strategies could have allowed more robust generalizable conclusions to be made but such a methodology would not have elicited the detail of accounts of local organisations work and residents that would be able to answer research questions on the knowledge and processes of different ways of knowing fuel poverty. Ultimately this methodology was chosen to access what makes this thesis a contribution to the field: an explicit detailed account of the co-existence of three ways of knowing fuel poverty.

3.2.2 The criteria

First, a comprehensive list of the potential case studies was created through desk-based research (policy documents, press releases, think tank viewpoints), telephoning relevant organisations (National Energy Action, Energy Saving Trust, AGE UK) and existing contacts. The following criteria were used to select case study organisations and therefore areas

Type of organisation: Locally managed, operating and/or funded

Location: an English region

Time: Schemes operating within 12 months previous to November 2012

Assisted group: residents in England that the organisation deemed to be struggling to afford to heat their home, engaging with a range of socio-demographic groups including older people

Assistance: any that the organisation has deemed to be a method to combat/alleviate/assist with a resident's fuel poverty status, involves direct interaction between the householder and the organisation.

Organisations tend to carry out a number of schemes at a time. Schemes tend to be targeted widely to reach a variety of householders, with a small number directed to people in certain circumstances, such as those with mental ill health or over 65 years old. The criteria included any organisation that would be engaging with older residents through any of their current schemes.

Invitation letters were sent out to the first three programmes to fit the criteria. If no reply was received within two weeks, a follow up letter/telephone call was sent. If it was refused, a second choice of case study was chosen from the list to replace the programme 'lost'.

3.3 Area studies

The selection criteria resulted in a relatively small list of case studies. For this reason it was decided to select any appropriate organisation rather than to concentrate on a particular geographical region of England. Each time an organisation was approached it was compared to any organisations that had agreed to take part. As discussed before, this allowed case studies to be selected that had common selection criteria but showed heterogeneity in other characteristics. The core characteristics of each organisation are shown below. These are correct for the period that the research was designed and took place (Autumn 2012 to Spring 2013).

Organisation A

- Large geographical area comprising urban and rural areas
- Top 10% most deprived LSOAs and Local Authority in England (Office for National Statistics 2011b)
- Variable housing stock from terraces, bungalows and flats with approximately a quarter of all housing being social housing.
- Just under 50% of private housing did not meet the Decent Homes Standard in 2009 (Local Joint Strategic Needs Assessment)
- Approximately 2.5% of households did not have central heating systems (Office for National Statistics 2011a)
- Excess Winter Deaths index is very similar to that of the English average although there is a wide variation within the area (Office of National Statistics 2014)
- In an annual report for financial year 2011-12 it is stated that the organisation saw approximately 3400 clients in that year
- Three energy advisors carrying out home visits were employed at the time of observations

Organisation B

- The vast majority (70%) of households were owner occupied whilst social rented and private rented accommodation account for 12% and 17% respectively (Office for National Statistics 2011a)
- Central heating has long been an issue for the county. Percentages of those without central heating systems have decreased from 18% to 7% between 2001 and 2011, being one of the five highest counties without central heating in England (Office for National Statistics 2011a)
- Many houses operate with coal, oil or LPG from tanks next to the property as the gas network does not cover the whole area
- Excess Winter Deaths index for the county is lower than the English average (Office of National Statistics 2014)
- In evaluations, there is a lack of concrete numbers but the organisation's main project giving fuel poverty advice saw 300 people on average per financial year through home visits.
- One main energy advisor was employed with a second undertaking home visits during busy periods.

Organisation C

- The vast majority (approximately 80%) of housing is owner occupied or privately rented
- Approximately 4% of households do not have central heating systems (Office for National Statistics 2011a)
- Excess Winter Deaths index for the county is slightly higher than the English average (Office of National Statistics 2014)
- Recent years the organisation has seen between 100 and 200 households per financial year
- Two energy advisors carrying out home visits were employed at the time of observation

3.4 Ethnographic observations of organisations and advisors

A period of two weeks (between January and April 2013) was spent shadowing energy advisors of the selected organisations in order to gain an understanding of how they function on a day to day basis. The shadowing also provided a chance to observe how the role of the organisation plays out in homes of residents.

There is a need to justify why this period of shadowing is described as "ethnographic" in style. Ethnography can be defined as "participant observation plus any other appropriate methods/techniques etc." (Crang & Cook 2007 p35). Ethnography is about being *within* the daily world of the people being studied and aiming to understand the meanings that people apply to their own experiences (Fielding 2008); both characteristics of the methods in this thesis. Whilst ethnography has long been about prolonged, in-depth time spent in a community, contemporary discussions have acknowledged that this is not always essential and that short term

ethnography is sometimes more appropriate (see Forsey 2010). Due to the nature of this study and my own motive behind the project, it is important to produce work that can empower and improve the lives of the fuel poor, something which feminist and postmodernist ethnographers also value (Fielding 2008).

Contemporary comments on ethnography have discussed opening up the idea of what it has traditionally been satisfactory to call "ethnography" through an idea of using an 'ethnography imaginary' which according to Forsey (2010) has the purpose to "ask questions beyond the immediate concerns of the research question…probe biography, seeking to locate the cultural influences on a person's life, looking later to link this to the pursued question, or, in the inductive spirit of ethnography, to even change the question." (2010: 568)

So while this is not a traditional prolonged ethnography, it does have an approach that is "ethnographic" in imaginary and in practice. It focuses on being 'within' the landscape and on getting to know the symbolic worlds of the people within it (Fielding 2008) as well as using participant observation supplemented by other techniques. The mindset of the research is about using an ethnographic imaginary to reach depth and emotionality; something which points at ethnography rather than simply participant observation.

In this case the organization is at the heart of the ethnography whilst we still need to bear in mind the presence of the residents through the home visits.

3.4.1 Within the organisation

During the winter months, organisations carry out a large number of home visits as a result of either the resident contacting them directly or through referral by a service worker such as a health visitor or a social worker. Each day I was assigned to an energy advisor to shadow the appointments that they had booked in, without imposing any of my own selection criteria.

In all three organisations, time was spent in the office environment. The organisations have one main office with one or two side rooms meaning that I was able to witness the majority of the organisation's tasks. The office is where members of the public can telephone to find out more about specific projects or with just general enquiries of what help and advice might be available to them.

During the two weeks with each organisation, I observed a mixture of the organisations' tasks and activities. My presence with the organisation mimicked a normal working day for those working on fuel poverty there. Due to the structure of this work, the time was spent focusing on home visits in their entirety. I observed and undertook tasks making the pre-visit arrangements, attending visits and carrying out

any follow up work. The number of home visits at each organisation varied greatly as they followed the natural bookings, without special arrangement because of my presence. 30, 14 and 10 home visits were attended at organisations A, B and C respectively. Organisation C was in a state of change structurally and so home visits were less frequent and more sporadic.

Home visits are only part of the daily work of an advisor and the organisation, so some time was spent in the office environment. This included telephoning residents to book home visits, putting together publicity materials ready to go out with advisors on home visits, talks and meetings and following up with residents that had asked for more information on tariffs for example. Time was also spent exploring the type of electronic and non-electronic forms and databases that the organisation use to collection information on residents, pre and post visit. To become acquainted with the procedures involved in various activities and to discuss these activities with those also working in the office contributed to a level of participation as well as opportunities for observation within the methodology.

On the way to each visit, whilst the advisor was driving, we would discuss the information on the forthcoming home visit. If this was a first visit, the information available might only be their name and their contact details, but possible additions were details of why they got in contact or what specifically they were struggling with. If it was a second visit, the advisor would inform me of the situation up to this point and what they might be expecting at the impeding visit.

Between home visits, time allowed field notes to be recorded and expanded through discussions with the advisor. It was an opportunity to probe details that were unclear and to get an idea of the advisor's reaction to the previous home visit.

Notes were recorded in a field diary after the home visit had taken place because it did not feel appropriate to be making notes during, due to the potentially sensitive and emotional experience that a home visit could be. Even in the cases where it was not the first home visit, it was not possible to know how comfortable the resident would be with a researcher present and thus it was decided to record notes afterwards so as not to disrupt the situation I was observing (Fielding 2008). The focus here was on the organisation and its activities and not the individual residents.

Every organisation had a clearly designed document of who the researcher was and what the research involved when they were initially approached to take part and so it was the manager or contact's role to then explain to the rest of the team who I was. This ran smoothly and throughout my time there I discussed what the research was for and how all the stages were to be carried out. It was important that the advisors had a good grasp of what I was doing as when we entered the homes of

residents, it was up to them to introduce me. Generally I was introduced as a student researcher, about which the resident had been asked if they were comfortable with my presence before the start of the visit.

Each organisation interacts with other organisations in the community as part of organised networks and delivering collaborative projects. Attendance at meetings of these enabled observations situated within the local context to be undertaken, which added an understanding of fuel poverty in the priorities of the local area.

During this time, documents on the organisation and its schemes were collected and briefly analysed so as to be well-informed and build up an idea of the case study. This included planning documents, implementation documents, evaluations (informal or formal) and publicity materials. Largely these documents were those that the advisors mentioned or used in their daily work rather than those that were thought to be important for the research by those not on the front line within the organisation. Where specific information was needed but not included such documents, such as numbers of home visits annually, the relevant person within the organisations was approached with a specific enquiry for information. Initially, all of these documents were read, explored and briefly analysed. This 'analysis' is a similarly loose term that Crang (2003) suggests will carry on throughout the subsequent stages of the methodology, though a firm grasp of the scope and activity of the organisation before the home visits was key to gathering information efficiently.

3.5 Interviews with older residents

The second part of the methodology puts the resident at the centre, focusing on the everyday experience of fuel poverty. During the home visits, those households that included people over 55 years old were asked if they would be willing to be involved in the research. Potential participants were given a handout (Appendix A) explaining the project in full and they were given time to consider whether they would like to participate. This information made clear the independence of the researcher and that there was no onus on them to take part regardless of whether they received help from the local organisation. A telephone call was made to them approximately a week later, without the involvement of the local organisation and out of those contacted, seventeen of those approached, across the three areas agreed to participate.

Qualitative interviews are conversational, enabling unseen spheres to become visible (Wiles et al. 2005). Specifically, in depth semi-structured interviews were used as they are appropriate for gathering data on everyday lives (Gubrium & Holstein 2000). This research aims to address the gap in studies on fuel poverty that have

focused on the resident's experience from their point of view, in a qualitative holistic way. Studies have looked at fuel poverty and the everyday experience through qualitative interviews (Harrington et al. 2005; Brunner et al. 2012; Burholt & G Windle 2006) with two studies focusing on older people in particular (O'Neill et al. 2006; Wright 2004).

By being present in the domestic environment where the residents have experienced being cold or thermally uncomfortable, the approach focuses on their current position rather than on recollecting the past. The researcher is more likely to be able to gain *accurate* access to what the older resident does, feels or thinks during times of cold, vulnerability to fuel poverty and hardship, through discussion in context (Elwood & Martin 2000). This consisted of open-ended questions on home life such as thermal comfort, heating habits, payment methods for energy and health conditions, as shown in the interview schedule further below. This fits with the use of an ethnographic imaginary as mentioned earlier.

Interviews in the home are preferable because they are sites in which residents are more likely to feel comfortable sharing personal information and places that may provide items as tools to probe during the interview process (Elwood & Martin 2000). Elwood and Martin (2000) argue that the interview site produces 'microgeographies' of spatial relations and meaning.

The thesis explores routine habits and practices of everyday life, a central focus of a social practice approach. Hitchings (2012) argues that interviews should not be dismissed as entirely superficial when exploring these topics because in some cases people can talk about their routine habits. My interviews are a prime example of where discussions of everyday practices, such as those connected to energy use and thermal comfort, can be explored in an interview but that ageing and 'getting older' may be more difficult to probe in this way. The timing in the winter time provides stimulation for the topic at hand to be discussed during a time when the residents are using their heating every day and are faced on a daily basis with living on a low income and keeping warm.

3.5.1 Operationalisation

As the sample of older residents was small, purposeful stratification (e.g. by housing type, tenures, ages, genders, occupancy levels) of the sample was not possible within a case study, although a relative diversity of characteristics was present as shown in the Table 3.2 below.

Age (years)	Household makeup	General condition of health[1]	Housing type	Housing tenure	Central heating system	Payment type
50-60	Couple	Poor	Bungalow	Local authority	Gas	Payment card
80-90	Male	Poor	House	Owner occupier	Gas	Quarterly bill
70-80	Male	Moderate	Bungalow	Social Housing Provider	Gas	Payment card
80-90	Male	Moderate	Bungalow	Local authority	Gas	Direct debit
60-70	Couple	Good	Bungalow	Local authority	Gas	Direct debit
60-70	Male	Poor	House	Owner occupier	Oil	Prepayment Meter
90+ and 50-60	Male and Female	M: Poor F: Good	House	Owner occupier	Gas	Prepayment Meter
70-80	Female	Good	House	Owner occupier	Gas	Direct debit
60-70	Male	Poor	Park home	Owner occupier	Oil	On receipt of bill
70-80	Female	Moderate	Park home	Owner occupier	Bulk LPG	On receipt of bill
60-70	Female	Good	House	Owner occupier	Gas	Direct debit
60-70	Couple	Good	Flat	Private rented	Gas	Prepayment Meter
60-70	Female	Good	House	Owner occupier	Gas	Direct debit
80-90	Male	Good	Bungalow	Owner occupier	Gas	Direct debit
80-90	Couple	Poor	Park home	Owner occupier	Gas	Direct debit
60-70	Couple	Good	House	Owner occupier	Gas	Direct debit
70-80	Female	Good	House	Owner occupier	Gas	Direct debit

Table 3.2. The characteristics of interviewees across all three case studies

After initial contact with the residents through a home visit, a time and date for a telephone interview was arranged between late January and February. Telephone interviews are useful when a social relationship, of some kind, already exists and

[1] This is the researcher's own interpretation of the resident's state of health according to what they exhibited and spoke of.

when probing factual information rather than attitudes and feelings (Fielding & Thomas 2008). The telephone call was brief so as to leave plenty of space for in depth discussion at a later date and not to cause anxiety over the telephone when efforts to quell these feelings would be challenging. Discussions were centred on how their situation may have changed and how the organisation may have been helping them since the initial visit. Their situation may have changed not just in relation to paying for fuel or with the cold weather but with their day-to-day life and circumstances at home. If this was the case, questions were asked about their family, regular visitors, changes in health and mobility and changes in financial situation (where appropriate or brought up by the resident). A broad set of prompts made up an interview guide that could be used for every participant while field diary entries for each resident were read thoroughly beforehand and some specific questions in light of what was seen or they were told in the initial interview were put forward too.

At the end of the telephone conversation, a date and time was arranged with the resident for when an in-person interview could take place towards the end of the winter (March to April). A minimum 90 minute time slot was allocated initially for each interview.

As it was a semi structured interview, the use of an interview guide rather than set questions enable the residents perspective to be flexibly discussed shown in the interviews whilst ensuring that broad topics of conversation were covered (see below) (Knight 2002). The knowledge from the organisation documents and repeated contact with the residents provided an informed background to design the interview guide in addition to building rapport with the residents as is especially crucial where sensitive subjects are being discussed (Dickson-Swift et al. 2008; Dickson-Swift et al. 2007). Each interview schedule was personalised with the details of the work of the organisation and any relevant details of the resident's situation.

The at home interview schedule covered a number of themes:

- Daily routine
- Heating system
- Energy efficiency measures
- Energy supplier
- Keeping comfortable
- Health and wellbeing
- Being older
- Family and friends
- The [case study] organisation

These discussions were audio recorded and supplemented by field notes made immediately after visiting the resident's home. This allowed me to concentrate on what the resident was saying, respond appropriately and focus attention on the present conversation.

As a researcher interviewing older residents, it is important to reflect on the potential influence of age on the interview dynamic as interviews are events structured by the interviewer and the interviewee and can be considered to be "negotiated performances and co-constructed accounts that shape interpretation and result" (Grenier 2007 p716). Whilst to neutralise the age and generational-based norms in an interview between the researcher from one generation and the older person from another generation is not realistic, design and operationalization considerations were made for how norms might influence understanding of questions and their responses held by either party. The potential age-related power dynamics can play out in the conversation of an interview. Tarrant (2013) points to an example where an older participant answers her questions, as a young researcher, that included information on the assumption of her youth and (lack of) certain life experiences. This appeared to happen on a number of occasions to me also but was intrinsic to the interview questions on what can be deemed to be mundane normal activities. Some presumption that I was not aware of how boilers may work, how insulation is installed or what benefits they are entitled to influenced the conversation dynamic. This point is incorporated into the analysis of the data but can be seen as a positive influence for the purpose of the research as by being an 'insider' to this type of knowledge, the 'normal' things may not have been discussed.

3.5.2 Fieldwork diary

The second data collection method to work alongside the interviews is a fieldwork diary. This is used by the researcher to note down any information that had not been audio-recorded. Often this is how the researcher feels about the situation, how they perceive their relations with those around them and what data is being recorded and why (Morse & Richards 2002; Bernard 2000). This is important because notes from the field diary can shape the way that the researcher explores the data, the process of making sense of the data and provide initial themes (Bernard 2000). Bernard (2000) talks about the role of a field work diary as somewhere for the researcher to express their emotions and feelings when fieldwork gets difficult. Similarly Lee-Treweek (2000) discusses her research experience in a care home and the role of her field diary as tool for thoughtful reflection during data collection while it was insightful and informative long after data collection and into data analysis. Emotions

have not traditionally been expressed in fieldwork to the extent that we see cognitive and behavioural accounts as it thought researchers should be clear to present themselves as social *scientists* (Kleinman & Copp 1993). A fieldwork diary is a way to record such responses and its use alone does not result in a more emotionally engaged piece of research.

3.5.3 Emotions and vulnerability

The discussion of a fieldwork diary leads me to consider the role of emotionality in the research, in terms of both my role as a researcher and the data and subsequent analysis. The effect of conducting research with vulnerable people and/or on a vulnerable subject has received some attention but is still often neglected when thinking through ethics and the operationalisation of research (Seymour et al. 2005). Physical and emotional exhaustion is not something I was prepared for before undertaking the fieldwork but despite this degree of unpreparedness, my reaction to the fieldwork can be, and is almost unavoidably, combined in the data that I 'gathered' and the analysis that is undertaken. As Coffey (1999) says:
"the physicality and emotionality of fieldwork should be seen as strengths, rather than burdens to be endured" (p158)

Although social science and qualitative research has many difficult challenges, Dickson-Swift (2007) suggests it is compounded for research on sensitive or difficult subjects. She discusses the challenges for the researcher of doing sensitive research in a way that mimics the feelings I experienced during and post fieldwork: the importance of being a human being not just a 'professional, accurate researcher', re-living or having an exaggerated response to sadness when transcribing recordings, gratefulness and indebtedness to the participants for the data, heightened sense of one's own mortality and vulnerability. Whilst my research was not focused on death, palliative care or violence, it did delve into emotive subjects such as current and future debilitating health conditions and the ageing process, struggling domestic finances and abilities to cope with changes. I also found that in the interview situation, all of the potential causes of sadness in life are discussed in a short time period unlike any other time in life. It is this unfamiliar nature of conversing about life that is so disarming, especially when the researcher is the one initiating it and, ultimately gaining from it. Whilst it is important but not altogether obvious to acknowledge these feelings and think about them as part of the 'rite of passage' to becoming a researcher, there's something important for the 'data' and the analysis. Woodthorpe (2007) describes how she was seeing her data through a "new lens of emotion and a fresh analytical depth" (p6) after this acknowledgement of emotionality

and the self and the data. By utilising emotional accounts of the researcher, those of the researched can also be incorporated to result in a fuller view of the people we study.

Rarely does academic work discuss how the researcher has been emotionally affected by the research - as if by acknowledge the researcher's emotions we undermine the objectivity of the research. However one study of fuel poverty does present a similar reflection that I have mentioned but, even then, it is in a detached way. In de Haro and Koslowski's study of fuel poverty in high rise flats, community-based interviewers not academics were used to carry out the interviews with householders. Whether as directed by an ethics review or by the academics own design of the research it is not clear but debriefing sessions were conducted with the interviewers after their interactions with the householders and it was said that they "were visibly emotionally affected by some of the living conditions they had witnessed, despite knowing the area well" (De Haro & Koslowski 2013 p114). This realisation should not be confided to when we are discussing others but to omit that researchers might be affected by interviewing those in fuel poverty is a missed opportunity.

Beyond these worthwhile arguments, there is something to be learnt specifically for this piece of research or more broadly for qualitative research on fuel poverty. Much of my reaction to fieldwork stems from the vulnerability that the residents exhibit. This can be to the cold, energy prices rising, complex billing systems, poor social/family relationships, the list goes on. What I witnessed on the home visits directly is what the energy advisors witness many days of the working week. Everybody will react in different ways but it is important for the data to consider the everyday working experience of advisors. In understanding what an organisation does the research must understand what an energy advisors working life is like and the best way to do that is to be in it rather than looking at it.

3.6 Analysis

The analysis process followed an iterative and continuous flow starting from the beginning of the research to the interviews and extends through and past the collection of data (Crang 2003). The form of the analysis is developed as theoretical deliberations combine with the collection of data to produce an informed set of themes and memos for a more conventional period of analysis.

Using open coding through a grounded theory approach, interview transcripts were analysed for major themes and sub themes. With so little research conducted on the meaning of fuel poverty in an experiential sense, this method of analysis

allows concepts, categories and theories to be constructed. Concepts were visible before and during the interviews but refining the coding framework was required to draw out the details of the analysis and understand the properties and theories presented through the interviews. This is guided by the three types of coding practices laid down by Strauss and Corbin (1990) of open coding, axial coding and selective coding (see Bryman 2012). This approach is influenced by the Grounded Theory of Strauss and Glaser (Strauss & Corbin 1990) however the analysis approach is not necessarily restricted to these ideas. I was reflexive about the categories and concepts throughout the process. Crang (2003) argues that this type of analysis does not necessarily have definite boundaries but is a more fuzzy process of research. “We might think of the analytical approaches as activities, as the practice of weaving the material into a text” (2003:129).

These ideas have been argued by other authors when discussing qualitative data analysis (e.g. Marshall & Rossman 2006). Ultimately the transcription data was integrated with the other ethnographic style data by analysing it alongside the interview data, using the same coding structure and linking it with relevant passages wherever appropriate.

The framework/tone of analysis mentioned above applied to all of the data. The organisation data was brought together into a text that can then be analysed using Computer Assisted Qualitative Data Analysis Software (CAQDAS). Data from each of the organisations was treated as three separate parts initially so that the key features are visible, before any comparison is done. The research aims create space for thick description of each of the organisations as this is still an area that needs to be understood. Once this initial analysis was undertaken, each of the organisations were compared for similarities and differences. This allows for the discussion to move beyond thick description and to take on a more critical angle.

The interviews with residents can be divided into the three areas of the UK that they live in, but they can also be treated as a single group as they fall into the same demographic of over 55 years old and non-working and the same situation of having received help and advice from a local organisation tackling fuel poverty. Comparisons and similarities can be drawn between the interviews in each area as well as between organisations. This enables any corresponding themes to be drawn from all case studies as well as to highlight the differences that may characterise each one as unique. Diversity is as important as similarity. Analysis addresses ideas of the practical workings of the organisation and of the programme through document analysis and the interviews. However, the majority of the analysis explores more implicit ideas of vulnerability, use of energy services and experiences of fuel poverty.

3.7 Summary

Chapter three has set out the ways in which the research has been designed to respond to the research questions. Undertaking the given methodology enabled the research to engage both with the work of the local organisation and the lived experience of the residents in the winter season of 2012 to 2013. The multidimensional qualitative mixed method approach allowed the different ways of knowing fuel poverty to be investigated both in their own right, and in terms of the relations between them.

During the implementation of the methodology unexpected events, such as illness preventing participants taking part and a certain level of flexibility required with the time spent with the organisations, reduced the amount of collected data compared to what was expected. Whilst the design of the methodology could have been more flexible to allow for such unforeseen circumstances, it did elicit enough data for a worthwhile analysis. Having now set out the research methods, the following chapters will present the data and the outcome of its analysis.

Chapter 4: Power in numbers? A national statistical way of knowing fuel poverty

4.1 Introduction

Not everything that can be counted counts, and not everything that counts can be counted.

Attributed to Einstein or W.B Cameron (1963)

Within governance processes the categorisation or classification of households as fuel poor comes about through an official definition which is then operationalised through a modelling process and the generation of fuel poverty statistics. These tools form a set of knowledge from which a particular abstracted way of knowing fuel poverty is produced and mobilised. They generate a view of the scale, distribution and dynamics of fuel poverty as a category of a national problem which orientates political debate and the scrutiny of policy measures and public investments of resources.

A categorical way of knowing fuel poverty forms the basis on which an abstract, intangible group of the population is created. Ruppert (2012) talks of categories as 'a device' that travels and "mediates the relationship between individuals and states" (p36). Fuel poverty as a category has a job, it has a task that requires it. If the classification was merely defined but not used in calculation of numbers or the driving of action then it would not be classed as a device. Nonetheless, a category is a device, it is not the one truth but gains leverage over and shapes truths. In this chapter I will reveal how what is labelled as real becomes real in its consequences. Just as in a census, having certain assigned categories allows people to claim certain political and social rights (Bowker & Star 1999) whether it is through the presence of statistics or of access to tangible help. This is the first chapter of three which disentangles the ways of knowing fuel poverty that different actors are working with.

In this chapter I will reveal how, through the practices of modellers and statisticians, the fuel poverty problem is understood through processes of

classification and categorisation. I begin by questioning what approach a category of fuel poverty is taking (4.2) before introducing the definition as it emerged and has changed over time in different policy contexts (4.3). As the quantitative modelling is a considerable aspect of understanding the definition and its purpose, I examine the different elements that contribute to modelling fuel poverty and how this may be pushed and pulled around over time. The chapter concludes by drawing out the implications of this category as a device that is trying to order the complex assemblage of fuel poverty in a way that national and local action intends to engage with.

4.2. Fuel poverty: what are we aiming for?

Going back to the basics and drawing links between poverty literature and contemporary understandings of fuel poverty is a necessary starting point for investigating what it is that a fuel poverty category is trying to encapsulate. It was confirmed in the Hills fuel poverty review (2012) that fuel poverty is distinct from (income) poverty, as we will see, but there are important similarities between the two conceptually and empirically that enables us to think through what approach is being taken to define fuel poverty. One of the most extensive debates within the general poverty literature is over how poverty is to be understood and defined. Absolute definitions stem from biological approaches to measuring poverty such as those which look at the levels of nutrition that people required as a basic need (Bradshaw 2000). In contrast, relative definitions of poverty incorporate a certain level of judgement in relation to the standards of living of the surrounding society (at a given point in time), often through defining poverty as an exclusion from 'ordinary' living patterns and activities (e.g. Townsend 1993).

Although the distinction between absolute and relative approaches is not necessarily clear cut. For example, Amartya Sen argues for an approach that incorporates a certain degree of absoluteness in order to produce a spatially sensitive definition (Sen 1985). This means to produce a definition that is relevant to different parts of the world in different states of development. For example, famine is a form of acute poverty no matter what the relative situation is (Sen 1981). In developing countries, an absolute definition of deprivation may therefore be more applicable than a relative one, as it is necessary for nutrition levels to reach a point of physical survival first and foremost. This is equally applicable point for fuel poverty, or energy poverty as it is more commonly known in developing contexts (Birol 2007). Energy poverty is a term used to describe those without even basic access to domestic energy supply. In developed contexts this basic access is significantly less

of a consideration and the term thus refers to the level of affordability related to access to energy services. The UK has achieved this basic level of energy but the strength of the political discourse around fuel poverty makes it clear that there is an agreed need to support achieving a higher level or standard that, under a capability framework, allows people to achieve what really matters to them or that gives them the ability to achieve a life where they can flourish (Sen 1999). However once you move beyond a basic necessity, there are differences in opinion of what constitutes an appropriate higher level.

The concept of fuel poverty has assumptions within it that subscribe to a certain construction of (fuel) poverty. With these decisions comes consequences for how the definition is perceived and interpreted. When Hills (2012) proposed the new indicator, he said that a relative definition is a forward-thinking approach because it reflects the idea that people should be able to participate in society's ordinary living patterns. The definition put forward by Hills is a relative definition in that it incorporates a relative standard through the use of median energy costs and the official poverty line as thresholds (see section 4.3.1).

Just as concepts of poverty can divide a population into invisible segments so can concepts of vulnerability. Vulnerability is a concept in its own right *and* in terms of fuel poverty. Kelly and Adger (2000) propose that vulnerability is "the ability or inability of individuals and social groupings to respond to, in the sense of cope with, recover from or adapt to, any external stress placed on their livelihoods and well-being" (p328). This definition also allows the nature of the 'external stress' to act as the context for understanding what 'vulnerability' is, whilst not being pinned to a discipline but is applicable to understanding fuel poverty. Households are considered to be vulnerable to fuel poverty in particular if they are likely to suffer more severe adverse effects of living in it than other households. These households are generally understood to be those who are older, those with children or those with a disability or chronic illness in national policy (e.g. the UK Fuel Poverty strategy) although this is debated (Macmillan Cancer Support n.d.; Hills 2011). Vulnerability in such an assemblage is made use of through being a criteria that allows households access to certain support (Day & Walker 2013). More will be discussed on how vulnerability is combined in the fuel poverty definition and modelling later in this chapter.

4.3 The fuel poverty category in policy

The existence of a definition of fuel poverty is well established in the UK (see Liddell 2012). It has also provided inspiration for definitions adopted in other countries around the world (Bouzarovski & Petrova 2015). Fuel poverty was first

identified as an issue with increases in world oil prices in the 1970s (Boardman 2010). While geographer Brenda Boardman was not the first to establish an understanding of fuel poverty, her 1991 book laid out a compelling account of the problem that alongside the work of many others signalled it was time to pay attention in policy terms. With politicians picking up on the issue in the 1990s, fuel poverty then became firmly planted in the agenda of energy policy in England.

The concept of fuel poverty was first used in UK reports in the mid to late 1990s, under the label ‘affordable warmth’ during the Conservative government before moving to the use of ‘fuel poverty’ with the new Labour government in 1997. In the early 1990s, some prominent politicians were arguing that that fuel poverty was not distinct from poverty; it is this that Boardman wanted to challenge and clarify (Boardman 1991). When a Labour government came to power, fuel poverty became a priority and many publications, policies and programmes took on the concept, with changes from ‘affordable warmth’ to ‘fuel poverty’ (Boardman 2010). Despite this strong political recognition at this time, campaigners, politicians and academics recognised that that there was a distinct lack of a plan of action to address the issue (Boardman 1991).

By 2000 there was a significant change in the way that fuel poverty was embedded in policy and in the way it was subsequently treated. The Warm Homes and Energy Conservation Act 2000 (WHECA) introduced at this time, initially a private member's bill, required governments to annually report fuel poverty figures including a methodology and sub-regional breakdown. This reporting has continued ever since and provides legislative context for subsequent fuel poverty policy (Hills 2011). The Act laid out a general definition of fuel poverty but left individual terms, such as lower income and reasonable cost of energy, to be defined by secondary legislation and the Secretary of State for Energy and Climate Change (Hills 2011). The general definition given in this early Act was that:

> A person is to be regarded as living “in fuel poverty” if he is a member of a household living on a lower income in a home which cannot be kept warm at reasonable cost
> (The Stationary Office, 2000 p1)

The orders of the Act required the creation of the UK Fuel Poverty Strategy 2001. This formalised a detailed definition, which was measurable and gave targets to eradicate fuel poverty in all vulnerable households by 2010 and in all households by 2016.

It was from this first detailed definition that statistics were created in order for monitoring to take place and for progress towards targets to be measured for the first time. The statistics continue to be used to recognise the scale and temporal change of the problem, by politicians, the media or campaign groups. Reporting of fuel poverty is crucial as it is used by government and other organisations to justify efforts to tackle fuel poverty.

With the 2010 target missed, and partly in response, the UK Prime Minister, David Cameron, commissioned economist John Hills to conduct a review on how fuel poverty is measured, whether it is distinct from poverty and the effectiveness of national policy. This review was presented in two reports – interim in October 2011 and final in March 2012 – including a consultation with relevant actors. The final Hills fuel poverty review (2012) put forward a new measurement that was intended to be a better representation of the issue. This included new thresholds for a low income and the level of energy costs deemed to be unaffordable. Through his investigation he classifies those as fuel poor if they have *both* low income and high energy costs (Hills 2012). The thresholds are based on different information from the previous definition and, in this way, it addresses some of the downfalls of the 10 per cent definition (see section 4.3.1) The specified threshold is the reason behind the new indicator being referred to as the Low Income High Costs definition (LIHC) and will be referred to as such for the remainder of the chapter.

In addition to the thresholds, the LIHC indicator has another part; the fuel poverty gap. This is the difference between the assessed energy cost of the house and the threshold for reasonable energy costs i.e. the depth of fuel poverty. This allows for differentiation between the fuel poor that are slightly within the threshold and those that are severely fuel poor. It is argued that the previous 10 per cent definition was trying to measure both the number and the depth of fuel poverty in one measurement (Hills 2012).

As the Hills fuel poverty review was an independent examination, afterwards it became the government's task to take on board what had been found and evaluate how this new knowledge would form part of the way in which fuel poverty was measured and reported as well as forming a new fuel poverty strategy. In Autumn 2012, the government released a consultation for response on changing their approach to measuring fuel poverty. This resulted in a number of documents laying down a new approach to how the government, based on by recommendations from the Hills fuel poverty review (2011; 2012), and a set of interim targets for 2020 and 2025.

The definition itself is not the only way to understand fuel poverty but its presence and history is a crucial part of any discussion; qualitative, quantitative, applied or theoretical. The two definitions by Boardman and by Hills have been adopted by the Government and are widely used in legislation and policies to tackle the problem at various times. The Government uses this tool as a way in which they can take control of something as defined and classified by expert knowledge.

A change in definition was a major event for those working on fuel poverty policy and those working with the definition and statistics. For the main reason that the adoption of the new LIHC definition produced a different profile and distribution of the population in fuel poverty.

The composition of the fuel poor population by household type is one of the most significant impacts of moving from the 10 per cent indicator to the LIHC indicator. The below table shows the sociodemographic profile of those defined as fuel poor under the two definitions that have been used by the government. The figures are for the year 2010 because this is the first year of statistics for the LIHC definition.

Household type	**10 % indicator of fuel poverty (%)**	**LIHC indicator of fuel poverty (%)**
Couple, with dependent child(ren)	8.5	23.8
Couple, no dependent child(ren) under 60	6.4	8.7
Lone parent with dependent child(ren)	8.9	19.8
One person under 60	19.6	13.7
Other multi-person households	6.6	8.7
Couple, no dependent child(ren) aged 60 or over	18.9	14.5
One person aged 60 or over	31.1	10.7

Table 4.1. Household type under each definition. Adapted from Department of Energy and Climate Change (2012a)

As the last two lines of this table show, in 2010 under the 10% definition half of the fuel poor were over 60 years old whereas this drops to a quarter under the LIHC

definition. The change is largely driven by the equivalisation of energy costs and a move measure disposable income after housing costs have been deduced. The changes can be explained as older households tend to have lower housing costs than other groups who do not as often own their homes and are therefore still spending income on rent or mortgage payments.

Just as the 10 per cent definition did, the LIHC definition captures the fact that vulnerable people will need more heating as they are likely to be at home for longer hours. But it does not capture the idea that vulnerable householders are more likely to suffer health impacts as a result of their fuel poverty. In 2010 under both definitions 80 per cent of all fuel poor households were considered to be vulnerable.

The statistics generated through the modelling, informed by the definition, are not kept exclusively within the Department of Energy and Climate Change. There are three key ways in which they are used.

Firstly, the figures of how many people are in fuel poverty and the size of the total fuel poverty gap is frequently cited in efforts to emphasise the severity of the issue. Politicians use the government figures to 'prove' the severity of the issue in their area (Walker & Day 2012). As in the media it is used to emphasise the problem and for lobby groups to raise the profile in comparison to other issues (Preston 2013). In the DECC's Framework for Future Action (2013b) the first line of the then Secretary of State for Energy and Climate, Edward Davey, uses the figures to illustrate just this: "Fuel poverty is a real and serious problem faced by millions of households in the UK today". Without the generation of statistics, we may know there was a problem but we would not be able to put a figure on it. In the Hills fuel poverty review the serious nature of the problem is explicitly explained in health terms by comparing fuel poverty numbers with those killed in road traffic accidents annually in the UK (Hills, 2011)

Secondly, the figures are used to justify efforts on the ground particularly in the context of recent cuts to public spending. Again released by the Secretary of State for Energy and Climate, his opening speech of the new fuel poverty strategy uses the distribution of fuel poor households living in poorly energy efficient homes to justify a new target and plan of implementation.

"Over 320,000 fuel poor households in England live in properties rated below band an “E” level EPC rating needing to spend on average £1,000 a year more on energy to heat their home compared to a typical home. Through the Energy Act 2013, we established a new duty to adopt a fuel poverty target." (Davey 2015).

Thirdly the statistics are used for targetting of schemes designed to tackle fuel poverty. The policy shift away from Warm Front providing support for energy

efficiency improvements in England led to questions of how many households the next schemes, Green Deal and Energy Company Obligation, would provide support to (Hills 2012). This continues to be a source of discussion.

These three ways in which statistics are used illustrates the confidence often given to them as being the scale of the situation. Walker and Day (2012) argues that the generation of statistics allows the scale of the problem to be seen and therefore provides an overall picture from which decisions can be made. The generation and making of them available freely (via the Department of Energy and Climate Change website) fits with ideas of procedural justice. In making them available other organisations have the chance to use them, such as the Centre for Sustainable Energy, the Association for the Conservation of Energy and AGE UK, in a way that enables them to carry out research, campaign and analysis the problem further in their own way.

4.3.1 The two official fuel poverty definitions and related modelling

As has been made clear, there have been two official definitions used by the English government in policy. The UK Fuel Poverty Strategy 2001 (p30) used the following definition:

"A household is in fuel poverty if, in order to maintain a satisfactory heating regime, it would be required to spend more than 10% of its income on all household fuel use"

There are two versions of this, one including and one excluding Housing Benefit and Income Support Mortgage Interest. The latter was included because it was used in the 1991 English Housing Condition Survey and would therefore allow comparisons to be made with preceding data.

Thirteen years later, the (new) UK Fuel Poverty Strategy, published in March 2015, took up recommendations from the Hills fuel poverty review and finds a household to be fuel poor now if it:

- has an income below the poverty line (including if meeting its required energy bill would push it below the poverty line); and
- has higher than typical energy costs (i.e. required energy costs above the median) (p16)

As both of these definitions illustrate, energy costs and household income are the centrally involved characteristics shaping whether or not a household is in fuel poverty. As explained in Chapter 2 however, the energy efficiency of the property (and other technologies) is a mediating factor in determining the amount of 'required energy' a household is deemed to need and its subsequent cost.

While both of these definitions provide a degree of specificity as to how fuel poverty is to be classified, their translation into a statistical form through modelling work entails further background specification. By breaking down the inputs to this modelling, we can see the core components that go into constructing an abstract but calculable picture of fuel poverty. The three main components and the data sources that constitute the calculation of fuel poverty are shown in Figure 4.1.

Household energy consumption
- Data on housing and householders from English Housing Survey
- Random sample of housing and householders in England
- Essential in modelling fuel requirement
- Interviews and physical surveys. In 2011-12, approximately 13,300 interviews including 6200 follow-up physical surveys
- A BREDEM methodology is used to predict household energy use

Energy price information
- From a variety of sources including DECC price surveys, Office of National Statistics and Sutherland tables
- Different sources for different fuel types

Household income
- Collected as part of English Housing Survey interviews
- Constructs basic, full income and equivalised after housing costs (the official income figures used for the LIHC definition
- Some adjusts are made to 'clean up' the data

Figure 4.1 Key data sources for modelling fuel poverty. Adapted from Chapter 2 in the The Fuel Poverty statistics methodology and user manual 2014 edition.

Household energy consumption requires a significant amount of modelling which is carried out using the BREDEM-12 model[2]. Once this modelling is undertaken by the Building Research Establishment (BRE), the Department of Energy and Climate Change (DECC) uses the BREDEM-12 model in combination with information from the English Housing Survey (EHS)[3] to calculate household energy consumption as a complete element.

There are three key features of the modelling that are important to pull out at this stage in order to understand how a measure of fuel poverty is formed.

Firstly, a key characteristic of both the definition and subsequent modelling is that energy costs are hypothetical rather than actual recorded expenditure. This means that the energy costs in the definition are those that would be required *if* the house

[2]BRE's domestic energy model (BREDEM) produces annual modelled energy consumption for an individual household – space heating, light, appliances, water heating and cooking (Hills, 2011).
[3] The English Housing Survey (previously the English Housing Condition Survey until 2008) is a national survey of people's housing circumstances and the condition of the housing in England. It includes a household interview and a physical inspection of a sub sample of the properties (Department of Communities and Local Governance 2015)

was heated to certain temperatures (and if expenditure on other energy costs also was as modelled: see further discussion below). The rationale for this is clear; it allows for people who routinely live in 'cold' homes to come under the definition despite their actual spend being less than the given threshold for spending.

Second, as already noted the energy required includes not only warmth but *all* energy services in the home. This was set down in the one of the main documents published in 2000, as part of the background for the first legislation on fuel poverty: "a set heating regime, adequate lighting, cooking and running costs of typical domestic appliances" (DETR, 2000 p119 cited by Boardman, 2010: p4). This has always been the case but has not always been made explicit in subsequent documents and related discussions. Space heating has been modelled as approximately 55% of the average bill (Hills 2011). Previously, the UK Fuel Poverty Strategy (DEFRA/DTI 2001) decided that "no worthwhile distinction can be made between fuel used for heating and hot water, and that for other, equally essential purposes" (p30). Changes have occurred to the model used for energy costs in recent years (Department of Energy & Climate Change 2014a) but with few attempts to define the other energy services, the model uses average consumption not what is thought to be required use. While space heating still accounts for the greatest component of energy use, it is now less than the previous model and energy use for water heating, lighting and appliances has increased (Department of Energy & Climate Change 2014b).

Third, total energy costs are equivalised in order that like for like comparisons can be made between different households. The LIHC indicator equivalises by household type rather than specifically by size of dwelling and therefore results in high numbers in fuel poverty in larger properties. The Association for Conservation of Energy (ACE) and the Centre for Sustainable Energy (CSE) (2012b) argued that this makes it less likely that smaller, energy inefficient homes are classed as fuel poor . Smaller homes however show a higher proportion of indicators of fuel poverty, such as difficulty to afford energy costs, lowest internal home temperatures and the largest under-spending on energy (Association for the Conservation of Energy et al., 2012). During 2012 and 2013, the UK government considered the new indicator and how it would be used (Department of Energy & Climate Change 2012a). From this they decided to equivalise energy costs by household size, as equivalising by household type can lead to households with very different energy costs to be categorised together. For example, a lone parent with one child and a lone parent with four children would have previously come under the same classification. The Annual Fuel Poverty statistics released in 2013 were updated to reflect the Government's response to consultation of the LIHC indicator (Department of Energy & Climate Change 2013a).

Fourth, a difference in the use of the two indicators is that the breakdown of the data provides different explanations for trends. The LIHC indicator is less sensitive to energy price rises and therefore it is intended to more accurately show the effect of improvements in domestic energy efficiency and increases in income (Hills 2012) though the latter needs to be treated with caution as a relative increase in income across all deciles will not result in a change in numbers in fuel poverty. It is decreasing income inequalities that would lessen the extent of fuel poverty.

Changes in the variables within the calculations affect numbers in fuel poverty to different degrees in the different indicators. The 10 per cent indicator has been frequently criticised for its sensitivity to changes in energy prices (Hills 2011) and its threshold being a static figure reflecting a specific point in time. The LIHC indicator on the other hand produces a steadier trend because it is a relative measure and is less sensitive to changes in energy prices. The relative nature is a result of judging a household on the situation of society by using median levels of spend on energy and the poverty line. It illustrates a new approach that emphasises on-going mitigation rather than envisioning the eradication of the problem as the final end point.

4.3.2. Vulnerability in modelling

The English Housing Survey (EHS) gathers information on the lifestyles of householders in an attempt to understand their need for energy. This next section details how different elements feed into the modelling of fuel poverty statistics in ways that reflect the (potential) vulnerability of the householders.

Within fuel policy and programmes there is frequent differentiation between the general population and vulnerable groups within the population. Targeting can be specific to all of the groups classed as vulnerable, a specific vulnerable group or the general population with a certain amount of assistance expected to go to vulnerable groups. But what or who is counted as the ‘vulnerable’ in the context of fuel poverty statistics? The UK Fuel Poverty Strategy 2001 states that “older householders, families with children and householders who are disabled or suffering from a long-term illness are especially vulnerable” to the risks from fuel poverty and cold-related ill health. Also in this document it was stated that these vulnerable households “should receive priority assistance” (p8). This important document then presents rationale for these different household types being vulnerable to fuel poverty. For older people, excess winter deaths, physiological effects of cold, other discomfort, increase in domestic accidents and exacerbating social isolation are highlighted as a particular concern.

Of the three elements laid out in Box 4.1, the energy consumption of the household partially reflects vulnerability through calculation of required energy for space heating; the regime and indoor temperatures. The energy efficiency of the property is reflected in a calculation of total household energy requirement of four components of domestic energy consumption in the modelling of the statistics.

A household may have different space heating regimes (standard and full) during the winter season. 'Standard' presumes that there is no heating on during working hours and consists of two hours in the morning and seven hours from late afternoon during the week and sixteen hours during the weekend. 'Full' is for households that may be at home during the morning and/or the afternoon, consisting of sixteen hours of heating every day. Whether there is a member of the household present during the day is a specific question asked during the English Housing Survey (EHS) that provides the basis for this modelling. Vulnerable groups are often at home during the day and therefore have higher modelled energy requirements. Modelling of required heating divides the house into three zones with different expected temperatures: primary (21^0C), secondary (18^0C) and unheated (dependent on the external temperatures). As well as two heating extents: partial and whole house. Partial house is applied when the house is under occupied, according to the number of bedrooms and/or floor area and whole house is where the modelling is applied to all rooms in the house (Department of Energy & Climate Change 2014b).

Space heating is the only element within the energy requirement that partially reflects vulnerability of householders. Energy required for water, lighting, appliances and cooking does not take household type into consideration but is based on the number of people in a household. A technical document (BRE Housing Centre 2005), referred to in the 2013 Fuel Poverty Methodology Handbook, discusses the fact that the demand factor for water heating found that fuel poor households use less hot water than other households and that of all households, less hot water is used in a household with someone older present. Nonetheless, this analysis concluded that different standards for different household types were not evidenced for an equation factor to be applied as such.

Further down the line, the modelling process accounts for the general population and for vulnerable households through different assumptions about the temperature to which homes should be to be heated to and for how long they are heated.

The current model, BREDEM -12, uses 18^0C and 21^0C as the expected achieved temperatures, as from the WHO guidelines. The World Health Organisation has for some time set a guideline that temperatures should be at least 21^0C in the living room and 18^0C in other rooms in the home (Darby & White 2005). Public Health

England recently reviewed this guideline, as initially discussed in Chapter 2, and whilst noting that the evidence is not extensive, they have now recommended that 18^0C across all rooms in the house poses “little risk to a sedentary person wearing normal clothing” (Public Health England 2014a). They stress however that this room temperature threshold is especially important for those over 65 years old or with pre-existing health conditions and recommend that it is sustained overnight as well as during the days for these groups (implying keeping the heating system on overnight during cold weather).

There are some instances within contexts designed to measure fuel poverty in which ‘adequate temperatures’ are not 18^0C to 21^0C. In Scotland, where a version of the 10 per cent definition is still in operation, the total household energy requirement for all vulnerable households, older people and/or those with a long term illness or disability but not those with young children as in England, require a full heating regime of 16 hours a day and a higher living room temperature of 23^0C. This higher temperature has been in operation since 2002 in Scotland, though there is said to be no evidence base for the change (The Scottish Government 2012). In another context, a national survey of Minimum Income Standards conducted by the Joseph Rowntree Foundation used the standard of 23^0C for an older person as it “would conform to the standard used for sheltered housing” (Hartfree et al. 2013).

Through the official definition and the complex modelling, an abstract group of 2.35 million people in England (Department of Energy & Climate Change 2015a) are generated, faceless and identity free but brought to life as those labelled or modelled as fuel poor because of their individual characteristics, fuel prices and housing condition.

The statistical definition is a way in which we try to gauge the state of fuel poverty as a national issue. Indicators and definitions have changed, altering the details of inputs and ultimately of what is being represented. There are conflicts to be negotiated with the inputs of the indicators and their ability to reflect a certain situation. Understanding the inputs and the 'results' of an indicator is crucial to interpreting it. This negotiation is a normal part of any classification system, especially when combined with other existing, equally as complex, systems. But it is these inputs that allow fuel poverty (modelling and the definition) to be a useful single device through which we try to grapple with this multi-faceted murky problem.

4.4 A fixed idea of fuel poverty or a changing picture?

So far in this chapter, I have ascertained that there is a clear, although complex construction of fuel poverty using a quantitative definition, numerical modelling and

statistics. Its purpose is to emphasise the severity of the problem, justify spending and evaluate progress over time and space. I have discussed how this distinctive way of knowing comes about through different decisions. But how straightforward, static and agreed upon is this? As the three ways of knowing already laid out in this thesis suggests, one way cannot be championed as the one true fuel poverty, each way of knowing is up for negotiation and manipulation. Looking at broader ideas of classification this is not surprising. This next section will discuss how the categorical definition and its associated parts, can shift, be disputed and have fluidity before concluding with consequences of this knowing and how feasibly it can or cannot be used.

Whilst it may appear that a static definition was used for decades before the Hills fuel poverty review, this is not to say that every part of the modelling and the statistics has been unchanged. The DECC and National Statistics-produced Annual Report of Fuel Poverty Statistics (published in May each year) take into account new information which can be incorporated either directly in their production of the statistics or through the BREDEM methodology, which contributes significantly to the whole process. This new information can come from different sources such as surveys that alter our understanding of energy consumption in the home when new appliances start to become more commonplace, such as electric showers, or when changes in technology result in changes in energy consumption.

Each year changes are made to the fuel poverty income calculation methodology due to missing data, changes in the benefit and tax system and changes in the EHS interview survey (Department of Energy & Climate Change 2014b). The interview survey section in particular has changed considerably since 2001 with respect to what adjustments are made for lack of data and what is included in the interview questions. Furthermore the data quality for both income and fuel prices has been improved over the last decade through matching with other data sets such as the Expenditure and Food Survey, Family Resources Survey and Sutherland tables (Department of Energy & Climate Change 2014b).

This means that the modelling should constantly be being improved in terms of the accuracy and of what the data is trying to encapsulate while reducing the assumptions with either actual survey data or estimations corroborated with other existing data sets.

The above points may appear to be changes that are made under a general consensus that they move the modelling towards increased accuracy in what they are trying to capture but there can be disputes over the final outcome and the decisions that they are trying to instil in the modelling.

As mentioned previously, the WHO standard of 18^0C and 21^0C for indoor temperatures is widely used but not widely accepted. Not accepted in the sense that there are people that disagree with its blanket, widespread, no-questions-answered use but not in the sense that there is a wealth of alternatives put forward. However, the recent Public Health England review (Public Health England 2014a; Public Health England 2014b) does start to question this idea of what 'adequate temperatures' are and for different household types. The presence of this evidence could result in a change in the treatment of temperatures for older households for example.

The Hills Fuel Poverty review (2011, 2012) is an example of a time where disagreements were expressed, erupted and evaluated. It was a formal platform for negotiation and debate over the definition of fuel poverty, to voice opinions on different aspects of the definition that the government use. Within the production of the fuel poverty statistics there is a group (the Fuel Poverty Methodology Group) of statistical and methodology experts in fuel poverty and related areas and users of the data, whose purpose is to "ensure that the published data on fuel poverty continues to reflect the needs of the wider user community" (Department of Energy & Climate Change 2014b p54).

This discussion demonstrates the fluidity and dynamism of what could seem like a static situation of the definition and modelling. Within the modelling there are details that cannot change, alter or its measurement be argued over such as someone's age or fuel price but the modelling in a broader picture is intrinsically fluid and changeable.

However the final decision to move away from the 10 per cent definition brought questions of the intentions of the government in the use of fuel poverty. There was frustration that the English government were 'changing the goal posts' in order to (artificially) reduce the numbers in fuel poverty (Press Association 2013). But media discussions of this merely highlight the fact that the concept and the purpose of the indicator are misunderstood as calls are made to 'eradicate' something that is currently relative in nature. This media coverage begins to highlight just how the statistics are used, not just in annual isolation but compared over years to show progress of some kind.

This begs the question of what next? This is where we turn to see what happens beyond the documents, beyond the numbers and the 'results'. If we have a national indicator to give us a picture of the problem it is with the intention of knowing where the problem is. Whose homes does it reside in? Where can action be targeted? However this is not the case. Due to the complexity explained above which requires detailed knowledge of a specific methodology and of technical and financial aspects

of the house and household, trying to carry this way of knowing into the home of everyone is not feasible or practical. Many would argue it is not what it is intended for either but then the question is when does it stop being relevant and at what scale? The statistics are readily broken down into Local Authority and Lower Super Output Areas (LSOAs). The Annual Fuel Poverty Statistics report in 2014 (Department of Energy & Climate Change 2014a) states that the department are developing a smaller scale estimation tool. But what are those planning action expected to do with information at Local Authority or LSOA level? The smaller level, LSOA, can include between 400 and 1200 households or 1000 and 3000 people (Office for National Statistics n.d.). This cannot be used to tell an organisation whether an individual household or street is in fuel poverty or not. Instead this is where we find ourselves with an idea of the general severity of the problem in different areas but without the level of information needed to think about a household level.

If this is not translated into people's homes, how do we know if they are fuel poor or not? Do we want to know? The statistics and the modelling is indeed one way to classify or categorise fuel poverty but when the government and other actors are trying to engage with the problem on the ground they cannot work with the complex abstract definition and so must turn to something else. As will be explained further in Chapter 6, the use of the definition and/or calculation that goes into the modelling is rarely if ever used with figures from actual households. The inputs, discussed previously, require detailed knowledge of a household’s financial breakdown and a highly technical (in equipment and expertise) physical assessment of the house, thus making the definition relatively unworkable on the ground. Due to this they work with proxies. This is where we can see the category as a device travelling between everyday practices of classification and authoritative classifications (Ruppert 2012) as the category’s existence enables certain work to be done, without which it would not be possible to undertake certain tasks. The next section will discuss how this can be seen in UK fuel poverty policy, understanding what might be lost and what might be gained through use of such a category.

In order for people on the ground to receive support they must pass through a number of gateways to be deemed eligible for support. These gateways can take various forms but their presence ultimately means that a new group of the population are labelled as ‘fuel poor’. For the majority of schemes, the gateways are when people claim certain state benefits as this is taken as proof for age, mobility or health issues and income level. Here again we see a set of classifications being brought in from elsewhere that have their own history and process of coming into being.

These benefits are merely proxies they cannot be taken as the true reflection of the characteristics of the population. When benefits act as eligibility criteria for a scheme then certain households may not receive support despite being entitled to it as benefit takeup is particularly low in some groups such as those for older people. For example, nearly a third of those over 65 years old do not claim the benefits to which they are entitled (Office for National Statistics 2015). Retirement - the point in time at which it can occur - is decided by the government. By reaching a specified age it gives people certain rights to their pension as well as associated benefits. However being retired is not necessarily a category that all people identify with at the same time and while what is ‘older’ can be modified or changed by a person, pensionable age cannot. Again we see an example of where a dynamic classification is set against a (more) rigid classification. This 'rupture' could be said to arise from the tension as the ways lives are lived is ordered against formal categories (Ruppert 2012).

Proxies and the use of categories for socio-demographic groups can lead to a lack of targeted, cost effective implementation (Boardman 2010 p60). The use of benefits as gateways has ramifications for the perceived effectiveness of fuel poverty policy in working predominantly through benefits as a proxy of entitlement. As Boardman observes in her key text on fuel poverty in recent years: “It is not clear how many of the fuel-poor non-claimants would be eligible for benefits and how many are in a policy void. But, in total, it is quite a substantial number of households: 1 million in England in 2006.” (2010: 59).

Moreover, schemes are not always branded clearly to certain people from design to implementation and the result is a complex mix of people that can be helped under schemes all designed to reduce fuel poverty. These schemes create groups of people that receive support and exclude those that do not. The problem here is that each of these schemes creates groups of their own design, not necessarily those specifically identified a) by other (complementary) schemes and b) by the official definition of who is ‘fuel poor’. They overlap with each other but they are not identical. When discussing the census and the use of a categorisation of 'canadian', Ruppert (2012) says that the category 'invents' or 'makes up' new people. Fuel poverty seems less central to personal identity and being part of inventing (a sense of) a person, but it still has clear ramifications that are felt by individuals. It is not enough to then recognise that there are everyday lives and there are state classifications. The use of proxies can act as a diversion between the design of a programme and its implementation. This is an example of where the ‘messy flow' of experience is being ordered and through such, classifications are being subducted and redefined. The

state classifications are ways in which the relationship between everyday lives and assistance are mediated (Ruppert 2012). The ruptures that are created as a result have consequences in terms of the groups that subsequently receive political and cultural recognition as well as tangible support and assistance. The implementation of fuel poverty schemes is a site of negotiation between the calculation of fuel poverty statistically, the design of a scheme and the individuals in their home.

This demonstrates how being in fuel poverty, whatever technical definition or indicator we go by, and suffering the cold are not synonymous but are the consequence of tools and processes that are part of moving between design and implementation. The fact that it would be difficult to identify those houses meeting the official/statistical definition is not hidden but realised and acknowledged in documents and plans (Sefton 2002; Walker et al. 2012; Dubois 2012). But proxies become the most practical and effective (quick) solution for identification.

There may always be some people that are not captured under a social policy but the fuel poor are notoriously difficult to find and if criteria exclude people not because they do not met the criteria but because they cannot be tested through the criteria then the system is fundamentally flawed at reaching the most vulnerable and/or those already identified as likely to be fuel poor. It is the conversion or translation here of the statistical definition into workable criteria where many of the problems I mention lie.

In this case, I am talking about a problem beyond this. Due to a large reliance on residents to self-select and ask for support, there is a mismatch between those who might be statistically calculated as fuel poor and those who are 'found' and then can access support. Whilst there are many schemes operating at one time with some variation in who is eligible it could be assumed that many people slip through one net are caught by another. But for people who do not claim benefits they are entitled to there is no net. In some cases, this means £100 or £200 less this winter. For others it means not having access to energy efficiency improvements and leaves them with no other options for changing their situation and so they are trapped in a home with low temperatures or unaffordable energy bills.

4.5 Conclusions

I started this chapter with the assertion that there was a statistical way of knowing fuel poverty that is produced through the act of making a category. Having moved in detail through the processes by which the broad concept of fuel poverty becomes a statistically defined and measured category, it is evident that it is not a naturally

occurring or formed classification. It is a constructed representation of part of the population, abstracted from any natural or specified category of either people or housing. The statistical way of knowing is based on the interrelation of quantification, simplification of complex data and modelling of energy requirements, adequate energy services and the characteristics of the English housing stock and households. Fuel poverty is not a phenomenon located within the homes of people across England in a way that can be simply enumerated and recorded. The creation of the category is faced with a multifaceted phenomenon whose complexity leads it to be slippery for those trying to monitor progress and designing action to target it.

In this chapter I have explained how 'fuel poverty' is classed as a category, has become deployed as a device and how, as a consequence, categorisation provides a way of knowing the problem of fuel poverty. I have shown that there are a variety of choices that are made to capture the three elements (energy prices, household income and energy consumption) and the needs of those potentially most severely affected, known as vulnerable households. I have also shown how the fuel poverty category has been dynamic, prone to being pushed and pulled by different perspectives and forms of expertise, as part of an ongoing struggle to produce a somehow better or more 'accurate' measure of what it seeks to define.

These tools are the current way in which to 'know' the issue at a national scale, to guide how its tackled, and to judge if progress has been made. However it is clearly not everything.

The significance of this analysis lies in part therefore in recognising what statistical categorisations of fuel poverty mentioned are leaving out and *who* they may be missing out or hiding from view. If any classification becomes regarded as 'natural' there is a danger that no one is able to contest or escape its meaning (Bowker & Star 1999). As section 4.4 demonstrated, the purpose or the strength of the categorical way of knowing can only go so far and is only designed as such.

The next chapters investigate this further by examining in turn the experiential and procedural way of knowing fuel poverty. The statistical way of knowing forms a basis on which these ways exist and its presence and influence will be drawn out where it is appropriate. Having discussed the category at a national and policy level this thesis moves to a new research site centred around householders and the organisations that help them in order to draw out what we understand to be their different ways of knowing and how they interact.

Chapter 5: "Taking the chill off" - the experiential way of knowing fuel poverty

5.1. Introduction

Excerpt from interview transcript with Ms Williams:

I: and then [when there was no central heating], [during] the day, you spent most of it in here?

Ms Williams: yes I suppose we did because it was just too cold, to…I used to go out, go take the dogs out. I've got three dogs so I would go out and take the dogs out for a walk in the woods and that. But yeah it was just so cold, we'd stay in here really.

I: right okay

Ms Williams: …it's quite sad really! (chuckles)

I: right how did you find it? …did it seem sad at the time?

Ms Williams: no because it was what we were used it. We would, we've never had a hot house. We didn't know any different. I used to go out to my friend's up the road and oh! I didn't know how they could live in it it was so hot over there. But if they came over here they would think how [you] can live in this cold. You get used to what you get used to.

… he [energy advisor] couldn't believe people could live in such a cold house because when he came here it was particularly cold and we all had hot water bottles. Yeah…

I: and now that you have the heating, has anything changed about how you do things?

Ms Williams: yes! You can go out, you don't dread going out upstairs at night to the bedroom, you don't dread going out to the toilet and the kitchen. Cause you would leave everything [before] because you would leave everything because you didn't want to go out into the passage. No, yes, it's definitely easier. Much easier. And it's a better way of life. You are not cold all the time.

Perhaps the most obvious way to start an investigation into fuel poverty is to turn to those whose experience it every day. However discussion of 'the fuel poor' is inherently problematic. To say that because people are struggling to afford adequate energy and are so part of a homogenous group, classified under one heading, casts

aside what makes people and their circumstances often very different. This is not just because ‘old age’ is heterogeneous (Gubrium & Holstein 2000). But as explained in Chapter 2, fuel poverty is a multidimensional phenomenon, produced through the coming together of different material, social and economic elements in particular settings, as captured well by the application of assemblage thinking (Harrison & Popke 2011). While it may not be important to acknowledge who these people are for the purpose of generating statistics (as discussed in Chapter 4), we cannot expect a grounded account of the experience of fuel poverty to be ignorant of the normal complexities of people, their homes and the lives they choose to live. A substantial body of research has investigated older people and fuel poverty but through quantitative paradigms, with relatively little work on perceptions and experiences of being fuel poor (O’Neill et al. 2006; Wright 2004; Harrington et al. 2005; De Haro & Koslowski 2013). I did not focus on ‘problem’ behaviours but set out with the aim to open up and engage with the wider contexts within which people could be described as living in or with fuel poverty (as Day and Hitchings, 2009, encourage). This allows attention to be given to successful and unsuccessful management practices and to examine not only how access to energy services itself is configured but how it is part of older residents lives more broadly, allowing space for connections to be made to what is important to them. Understanding the lived experience is essential to improving the effectiveness of fuel poverty policy (Fahmy 2011).

To develop an experiential way of knowing fuel poverty, which is the focus of this chapter, we need a properly differentiated and sensitive account of how struggling to afford energy influences people’s everyday lives. What do these people think of the way they are living? How do they interpret their circumstances in relation to matters of warmth, energy costs and the infrastructure they are living with day to day?

This chapter takes a very different focus to the previous one, bringing in the stories of those that I have interviewed and the lives I have witnessed. Drawing on Chapter 1’s discussion of the different ways of knowing fuel poverty, I investigate, in this chapter how a particular way of knowing is constructed and produced through focusing on the lives of the older fuel poor householders themselves. I attend to the everyday domestic experiences of households, drawing on interviews with older people who have received help from three local organisations across England (which is the focus of Chapter 6). Just as critical gerontology commands us to question the stereotypes of being ‘old’ (Nelson 2004) this chapter presents a direct engagement with fuel poor individuals in a way that attempts to free the research of stereotypical conceptions of what it means to be older and fuel poor. The stereotype suggests that an older fuel poor person will be frail and struggling to keep warm, using inefficient or

ineffective heating technology in a poorly insulated, poorly maintained home. How this stereotype plays into the messiness and heterogeneity of real lives in real places will be an important theme picked up through the analysis.

This chapter is also my effort to share with others, the lives that I was offered a long glance into. As I write this I know that people living just metres away from me could be experiencing similar situations to those I met. It is with this in mind that I try to commit my conversations, snapshots of life and emotions onto paper. I am attempting to relay to paper, those injustices I witnessed, felt and reflected on every day of my PhD. As researchers we may grieve the injustices we study despite some perceived illegibility of this grief as the lives may be deemed 'ungrieveable'. However it is when we acknowledge grief that we recognise it and the political nature of the feeling and its cause can emerge (Butler 2009). This is not therefore *their* story. This can only ever be my story of the people I spoke to, their faces, the homes that they welcomed me into and the words etched clearly into my mind and heart, driving my intention of acknowledging them as individuals as well part of a bigger group of the population across England.

The statistical way of knowing fuel poverty, analysed in Chapter 4, is not focused on the individual person that Mr Smith is, but focused on how abstract and notional individuals that somehow represent Mr Smith constitute a (collective) group that form the scale of the national issue. However, relating the national scale of policy and funded programmes to their local consequences brings the householder into focus. What fuel poverty is to a householder draws on fundamentally different inputs or ‘data’. Their knowledge is rooted in the immediate reality of living in their homes, in their household and family context and the home they reside in. It is constructed around their experience of how they live, consuming energy, accessing the services that energy provides and living on a low income, and how this has varied for them over time and life course. Whether or not they seem themselves as ‘fuel poor’ at all, and how they interpret the ways in which they cope and adapt day to day will be an important theme of analysis in characterising this way of knowing. In this vein, the methods used to investigate this way of knowing also acknowledges the importance of people’s own articulation of their experience and their reflection on it. Ethnography is about being *within* the daily world of the people being studied and aiming to understand the meanings that people apply to their own experiences (Fielding 2008); both characteristics of the methods in this thesis. And so when questioning what forms of knowledge a way of knowing puts at the fore, the research can claim to honour the participants own perspective. Furthermore people’s own articulation can reveal the processes involved in a way that other methods would not allow.

The following discussion begins with some preliminary consideration of how a capability approach can be used to investigate what residents perceive as adequate access to energy services and how they deal with everyday life. The capability approach and the thinking about the meaning of justice that underpins it were laid out in Chapter 2, but it is appropriate here to revisit these ideas in terms of how they can provide a framework for analysing residents' perspectives. I then examine the lives of residents through the interviews and home visit observations. The chapter finishes with a discussion of how aspects of the capability approach can help to understand how residents' view and comprehend their own situation and the spaces where justice claims could be made.

The specific themes that I explore in this chapter are outlined below, moving from empirical material through to concepts of justice.

- how everyday practices and their rationales are connected to people's access to certain energy services at a financial, physical and social cost that they can deal with
- how householders are trying to balance their needs to keep warm and other energy services with the costs of energy and the forms of coping that entails
- how ageing influences how people try to stay warm and perceptions of affordability and harm
- how people may make judgements and evaluations in their own terms of experiencing struggling to keep warm affordably

This contributes to characterising the experiential way of knowing in examining the knowledge that is being draw on and the processes that are involved in its production.

5.1.1. Why capabilities and fuel poverty?

As with Chapter 4, there are ways of thinking and theorising that form the starting blocks for the discussion of data contained in this chapter, contributing then to the overall conclusions of the thesis. As laid out in Chapter 2, capabilities refer to what a person can do or be i.e. the choices available to them, while functionings refer to what a person actually manages to do (Sen 1981). People's access to income and other resources are positioned not as the metric of injustice per se, but rather as a means to an end. It is a person's capability to convert these means into achievements that they value which matters. Those in poverty then lack the necessary capabilities to access the functionings that matter for a worthwhile life, with

the conversion of resources into capabilities varying according to a whole set of interacting personal, social and structural characteristics.

This theoretical framing of the capability approach and justice serve the purpose of being a place from where to ask questions about what is trying to be achieved or solved when we talk of tackling fuel poverty and changing the current situation. In these terms, it is about the capability to access energy services that support valued human functionings (see Walker, 2013). With the emphasis on achievements and a strong basis in justice according to the lives that people can actually live, I will examine how people feel they can keep warm affordably.

Previously I emphasised that the services that energy provides is what is important, consumption is only instrumental, but in taking forward the capability approach, the focus shifts to the particular capabilities that energy services provide people with. Fuel poverty, in this approach, is about an individual's (in)ability to convert income into adequate energy services, which is then important to realising certain key capabilities and functionings such as bodily health. It is not to deny that resources are important but to ultimately say that they are not the only aspect of importance and that functionings and capabilities are the ultimate normative concern (Robeyns 2006). The argument here is that it is people's choice to not heat their home adequately but where the (in)justice lies is within people's access to that choice i.e. whether people have the capability to keep warm and therefore achieve things that they value doing or being.

Chapter 4 has already discussed how medical expertise considers that different bodies can need different temperatures to function adequately but there is inherently more to keeping warm than merely the indoor temperature.

The following sections discuss four major themes emerging from my analysis of the lived experience of households struggling to keep warm affordably. These are warmth, health and heating, coping strategies, how time and coping are understood and how ageing and coping interrelate. From there I will question how the capability approach may help us make sense of these findings.

As a reminder the empirical material drawn on in this discussions consists of semi-structured interviews with seventeen households where most or all of the residents were older (see Table 5.1).

5.2. Warmth, heating and health

When talking to interviewees about their use of energy the majority of the conversation was focused on energy used for space heating. In these discussions warmth was explicitly acknowledged as important and something that they wanted to

achieve. The words ‘warm’ and ‘comfortable’ were most often used to express what they were aiming for. What they considered to be a state of warmth was not always explained though. Thermal comfort literature would emphasise that it is not just about temperature but how the warmth of the environment is perceived by the person refracted through expectations, culture and convention (Chappells & Shove 2005). However reference to numeric temperatures levels was made by some residents when talking more generally about warmth in their home. This was usually in relation to their own use of the home thermostats on their heating system or their reading of strip card thermometers they had been given. Some had an idea of what they thought the ‘optimal’ room temperature range was, referring to some form of authority or advice they had been given. In these cases, the temperatures residents reported trying to maintain in the home varied between 18^0C and 24^0C. Other literature shows that reported thermostat temperatures do vary, across a similar range (Shipworth et al. 2009).

Age	**Household makeup**	**General condition of health**[4]	**Housing type**	**Housing tenure**	**Central heating system**	**Payment type**
50-60	Couple	Poor	Bungalow	Local authority	Gas	Payment card
80-90	Male	Poor	House	Owner occupier	Gas	Quarterly bill
70-80	Male	Moderate	Bungalow	Social Housing Provider	Gas	Payment card
80-90	Male	Moderate	Bungalow	Local authority	Gas	Direct debit
60-70	Couple	Good	Bungalow	Local authority	Gas	Direct debit
60-70	Male	Poor	House	Owner occupier	Oil	Prepayment Meter
90+ and 50-60	Male And Female	M: Poor F: Good	House	Owner occupier	Gas	Prepayment Meter
70-80	Female	Good	House	Owner occupier	Gas	Direct debit
60-70	Male	Poor	Park home	Owner occupier	Oil	On receipt of bill
70-80	Female	Moderate	Park home	Owner occupier	Bulk LPG	On receipt of bill
60-70	Female	Good	House	Owner occupier	Gas	Direct debit
60-70	Couple	Good	Flat	Private rented	Gas	Prepayment Meter

[4] This is the researcher’s own interpretation of the resident’s state of health according to what they exhibited and spoke of.

60-70	Female	Good	House	Owner occupier	Gas	Direct debit
80-90	Male	Good	Bungalow	Owner occupier	Gas	Direct debit
80-90	Couple	Poor	Park home	Owner occupier	Gas	Direct debit
60-70	Couple	Good	House	Owner occupier	Gas	Direct debit
70-80	Female	Good	House	Owner occupier	Gas	Direct debit

Table 5.1. Interviewee characteristics

As noted in Table 5.1, the general health of our interviewees varied greatly, from being in good health through to terminal and degenerative diseases. Nevertheless all interviewees saw it as important for their health and wellbeing to be warm. Health was often mentioned even when not directly probed. This is in line with findings of other research on how people understand and experience fuel poverty (Anderson et al. 2012; Harrington et al. 2005; O'Neill et al. 2006; Wright 2004). For example, Harrington et al (2005) found that the beliefs about warmth and health frame people's expectations about staying warm and living in fuel poverty. Participants in a study of older women (O'Neill et al. 2006) similarly made the link between living in a cold home and health, noting that it was important especially for older people. The specific health reasons that participants gave as to why they needed to keep warm varied, as did what they saw as the potential consequences of putting warmth first, and ahead of, other everyday needs. Where interviewees provided more explanation, problems with circulation and breathing were identified as being made worse by living in a cold home. Effects on mental health were also referred to, but less explicitly. For example, for one interviewee it was about being 'worn down' not just by the cold itself but by what else she had to do to keep warm:

> *"I've just felt a bit like worn, I've felt worn down by the cold. And I think these things impinge on your, you know you can take the steps you can kind of wrap up in as much as you can you can you know sit in the house with a duvet but I think you know it does affect you. And of course it may well affect your [physical] health as well"*
>
> *Ms Jackson*

In the evaluation of the English government's Warm Front scheme, Critchley et al (2007) found that those residents who *chose* to live at lower temperatures reported less anxiety and depression with the control of their indoor environment and they suggest that mental health is better when people have *chosen* to live at lower temperatures than when they feel they have to. This questions the simple assumption that a cold home leads to poorer mental health. However, choosing to live at low

temperatures does not remove the physical risk to people's health. As discussed in chapter 2, the thermoregulatory receptors of the body degrade as we age, making the detection of low temperatures more problematic (Dear et al. 2011).

The pre-existing health of residents could also play a role in how people experience trying to keep warm at an affordable cost. The sample included people with a range of health concerns affecting their breathing, mobility and circulatory systems. Residents suffering from terminal and degenerative diseases and those with restricted mobility saw themselves as particularly in need of higher room temperatures because of their health problems. This could be both because of the health problem directly or the medication and treatment for the health condition, as in the two following examples:

> *I (interviewer): "but when you have people around do you have the heating on the same as you would if you-"*
>
> *Mr Jones: "oh yeah … because I'm cold all the time with being on warfarin and they come in and says well its too warm in here isn't it"*
>
> *Mr Johnson: "…I don't know if you know much about emphysema but you've got to be very careful with your chest... But the cold as it has been, it affects you [your chest] so I'm careful, plus the fact that the wife feels the cold and we are over 25 years of age so…(laughs) … erm yes so we've had it going around the clock. Twenty four seven…seven…yeah twenty four seven!"*

For Mr Johnson his health problems were the reason that he had the heating on 'around the clock'. Others also noted that the effects of them being ill caused them to be awake and up during the night and, as a consequence, needing warmth during that time, increasing their daily heating hours. Change in the temporal pattern of heating is part of how people may adapt or cope with the specific needs that they have and generalisations about 'vulnerable groups' run the risk of hiding such complexities.

Health concerns extended beyond the interviewees themselves to other household members that they deemed to require warmth especially, such as those with disabilities, children and frail/unwell older residents. Here interviewees saw themselves as able to cope with low temperatures but wanted to achieve warmth for the benefit of those others in the house they perceived were less able to cope without warmth. For example:

> *I: "and do you feel the prices of them [energy bills] going up?"*
>
> *Ms Williams: "hmm of course you do. Each year you put more in. but its its just the thing you have to do. I can't not. I can't have him [her father] in the cold. If it was just me…well I still do it now. I'm used to the [low] heat."*

This consideration of other residents in the home can be seen in a number of different cases where members of the household have disabilities or illness that mean that they have reduced mobility. This restriction on being able to move around is seen to be why they either 'feel the cold' more or need higher temperatures.

In other research there has been some recognition of the effect that existing health conditions can play on people's experience of keeping warm. The majority of attention is given to the effect upon health, although the pre-existing health of residents may shape people's ability to keep warm affordably as well. When divided up by employment status, a face to face survey of 1500 households found the highest incidence of fuel poverty among those that were long-term ill and disabled (Healy & Clinch 2004) Macmillan Cancer Support have campaigned in recent years for more attention to be paid to terminally ill patients in fuel poverty policy (Macmillan Cancer Support n.d.). In a survey of health workers, 77 per cent reported evidence of patients experiencing pain as a result of living at low temperatures (Hills 2011)

The recognition of health as part of how thermal comfort is experienced is multi-faceted encompassing the effects of cold temperatures, the effects of existing health concerns and the effect on others all being part of how residents' experienced the struggle to afford adequate energy services. Whilst health was a priority in the way that people appear to 'know' their struggle, the following sections will show other considerations that shape how the experiential way of knowing is produced and constructed.

5.3. Costs, Coping and 'Common Sense'

A second theme prevalent in the interviewees accounts was a constant setting of the costs of domestic energy consumption against recognition of the importance of keeping warm. Interviewees used their heating with a continual awareness of how much it would, or might, be costing them. With all residents, there was frequent reference to how high costs were and how much they had risen, making affordability increasingly challenging. Some gave a sense that the cost of warmth had not always been a significant consideration but that it had become such in recent years and looked to carry on into the future. For example:

> *Mr Wright: "…then we turn it off and then it keeps it comfortably warm before we go to bed like you know so yeah. We don't have it on a great deal do we?"*
>
> *Mrs Wright: "No. We can't afford to! How they've gone up can we. But we do have it on to keep it warm though."*
>
> *Mr Wright: "yeah of course."*

For the Wright household there is a clear sense of needing to manage their situation carefully because of the rise in energy costs, and this was common to others in the research. Studying the coping strategies of households in England, Anderson et al (2010)also found that most people in their study expressed a wish to stay within their budget where possible. Their and other research has shown that older fuel poor households show a particular fear or aversion to debt, often showing a certain pride in an ability to live frugally (Anderson et al. 2012; Gibbons & Singler 2008). Where there are residents with health issues, interviewees expressed a particular determination that they would prioritise affording energy to keep warm in a way that suggested that going into debt was not considered to be an option.

> *I: and how do you think you are going to get along with the cost of the [new] central heating [system]?*
>
> *Ms Williams: oh it'll be fine. Yeah. If push comes to shove you just give up something. I don't know what I could give up but no. We'll always be able to find money from somewhere.*

Younger households appear to show less aversion towards debt and are more likely to go into debt due to higher energy costs, with those with children in the household in particular more reluctant to under-heat their homes (Gibbons & Singler 2008).

Table 5.1 shows that interviewees paid for their energy in a variety of different ways. Whilst the method does not allow any generalisations to be made there are three points that warrant explanation.

Firstly, when talking about the cost of energy, there is a clear connection being made to the use of resources (gas and/or electricity) and the meter, whether its standard or credit, being a monitor of how much is being used and how much is being spent. Of the three residents in park homes, they were aware of the meter but were less clear on how much they would be paying and how much each bill would be as they paid for the energy through the site owner. The cost of energy in this way was less explicitly given or known by the residents.

Secondly, when talking about the financial cost of energy, most of the conversations focused on methods of payment. Whichever payment method residents used, there was an awareness of the annual ebb and flow of energy consumption and the subsequent increase in cost for the winter months. Payments made throughout the year were seen as an opportunity to pay for the larger bill that winter would produce. For those with PPM, many interviewees talked about putting £5 or £10 'on to it' if they had it spare when they went to top it up and for those with an agreed amount each week or month, it would get rounded up to the nearest whole

number. Each extra amount was seen as a contribution to times when consumption was higher, as there was not a sense that they would be able to increase the amount without smoothing it out over the year.

Thirdly, despite this, with all interviewees there was the idea of 'the bill', whether paid by direct debit or PPM, residents spoke about being comforted by knowing they had paid for some of 'the bill', particularly what was seen as the larger winter bill, through their regular payments and as much wherever possible.

In literatures from campaign groups and academics, there is a negative account of the consequences of PPM (e.g. Doble 2000; National Energy Action 2011b; O'Sullivan et al. 2014). However with the three residents with PPM there was only one that expressed some desire to not have PPMs and this was framed under the idea that direct debit or standard credit would be a cheaper per unit way of paying for their consumption. None of the other residents reported struggling to keep money on the meter.

What methods were used to cope with the tension between keeping warm and the costs of doing so every day is the focus of the following four subsections focused in turn on responsively adjusting the length of time for which heating is kept on, and the parts of the home that are heated; using secondary heating sources; wearing additional clothing and layers that help to keep bodies warm even if room temperatures are low; and adjusting daily routines.

5.3.1. Temporal and spatial patterns of heating the home

Managing the temporal and spatial patterns of heating the home was a key part of coping strategies. Reducing fuel use is recognised as a common reaction to struggling to keep warm affordably. Central heating systems are found in the vast majority of homes in the UK and are intended to be provide a healthy consistent level of warmth within the modern day home (Palmer & Cooper 2013). Research has found that older people ration their heating, by turning off the heating system for portions of the daylight hours, even during the winter season. Older participants in the study by Wright (2004) turned their heating off for a number of hours during the winter despite believing that keeping warm was very important. Anderson et al (2012) found that those households with people at home for the majority of the day were most likely to ration their energy use. However of low income households, older residents were less likely than other age groups to report rationing energy use.

Amongst the interviewees, they talked about turning their heating systems on or off, up or down, and heating different parts of the home to a different extent on a daily

basis. When they thought that heating was not ‘needed’, it would be ‘turned down’ in some form, whether there was a room thermostat installed or not.

Most interviews took place during a particularly cold spell towards the end of the winter season, with lower than average temperatures. Residents commented on this and some mentioned that low outdoor temperatures had increased the amount of time that they had their heating turned on. Nonetheless, within the group of interviewees there was a variety of spatial and temporal heating patterns. Half of the residents turned the heating off for some part of their waking hours, whilst others kept it on for the whole time that they were awake. Two residents only turned the heating on when they felt it was necessary. For one of these, a lack of routine and regularity was the initial motivation, with cost being a secondary aspect. Whereas for the second resident, Mr Smith, cost was the sole motivation for turning the heating on only when they deemed it necessary.

> *I: “Okay...and what’s your usual daily routine with having the heating on?”*
>
> *Mr Smith: “sometimes twice, sometimes three times a day...”*
>
> *I: “for how long?”*
>
> *Mr Smith: “oh only half an hour at a time. We try to limit it down.”*
>
> Later on in same interview...
>
> *I: “ah okay. And do you try and reduce or limit the bill?”*
>
> *Mr Smith: “oh yes oh aye.”*
>
> *I: “but do you think about trying to keep it low?”*
>
> *Mr Smith: “in the winter everybody thinks about that. Because you can’t afford really a seven hundred pound bill, or a thousand pound bill so what you’re thinking is do we need it on, ah I’ll just have it on for ten minutes or half an hour to take the chill out of the air and that’s usually enough anyway.”*

In this case Mr Smith had debilitating health issues and therefore spent the majority of his time at home. There was little time when no one was in the house and the heating could be turned off for that reason.

So called ‘under-heating’ is adopted by a socio-demographic range of households and is not restricted to older people but is mentioned in the majority of studies focused on older people (Wright 2004). However, the daily lives of older people can be significantly different in how and where their time is spent although, in comparison to other groups, such as middle aged people in full time employment, older households are likely to require heating for longer periods of the day (Burholt & G Windle 2006). The heating requirements of different types of households and its occupants can also vary spatially. For families with children, bedrooms may become spaces where activities such as homework and watching television are done and so in these spaces being warm is important (Gilbertson et al. 2006). Anderson et al

(2012) found that those homes that were occupied for most of the day, whatever the occupants' age, were most likely to have to ration energy use. 19 per cent of people with cancer, according to a survey by Macmillan Cancer Support (Macmillan Cancer Support n.d.), turned their heating off during winter even though they said they needed it on, with 91 per cent saying that was because of financial concerns. Wright (2004) also found two sides to trying to keep warm. Participants believed keeping warm was very important but turned their heating off for some hours during the winter, despite having access to central heating.

Most interviewees spent a large amount of time in the house, and either turned their systems on and off by hand, or used a timer and/or thermostat to set a temporal pattern to their heating system. The choices they made were dynamic and often linked to the outdoor conditions on that day. Many residents were aware of how the building sat within the surrounding area and explained how the local physical conditions were reflected in what they would do in order to keep warm on a day to day basis. These changes included heating certain parts of the house to ward against draughts, using thick curtains on certain aspects of the house and making use of the rooms that were naturally warmer for certain periods of the day at certain times of year.

While the general indoor temperature was, in these ways, purposefully changed quite regularly, few residents changed the output from the radiators in the same way as they used the room thermostat. For most, each radiator was set at a certain level and left as such relatively permanently. Other research has shown that people may not be clear on the purpose of the various thermostats of a central heating system (Shipworth et al. 2009).

5.3.2. Using secondary heating devices

As noted earlier, central heating systems are found in most homes (Palmer & Cooper 2013) and are intended to be provide a controllable, efficient and consistent level of warmth. Central heating was in place for all of the households interviewed, but nonetheless the second form of coping tactic was to use various forms of secondary heating technology, such as portable halogen heaters, portable oil-filled electric radiators or built-in gas fires. For most participants, the additional heating was used to supplement the central heating system; citing benefits such as instantaneous heat and providing heat to a small area close to the device.

> *I: "yeah so why do you like to have that [portable electric fire] on rather than turning your [central] heating [on], the thermostat up?"*

Mr Robinson: "I do! As soon as I get up I turn the heating on! I turn it- but it sort of takes a small while whereas when I, if I'm getting dressed like, I just flick that on and I can stand and get dressed and its sort of blowing hot air up right away you know. You haven't got to wait for it."

Residents used portable heaters to warm up bathrooms, to get dressed in front of and to "combat the cold" in certain rooms where they felt that part of the building was particularly cold. It was through such conversations that a clear awareness of the house as a building was exhibited. The benefits of portable heaters were seen as those which counter-acted the disadvantages of central heating systems - portable, instant heat and isolated not part of a system.

Some residents had central heating systems installed in the weeks between the home visit and the interview. They reflected on how their past use of portable or individual heating devices had in comparison been inadequate to keep them properly warm. Across all homes, when additional heating was used, cost was a consideration and using them for a short period of time was seen as appropriate as longer use would lead to unwanted high expenditure.

I: "and how, and you said that you turn the electric heater on at night, or in the evening-"

Mr Care: "yeah I put that [portable electric heater] on, I don't put it for too long but I put it on around about that area to try and combat that cold coming in. Like in maybe it'll warm up here but its just a waste of time because that cold just keeps this room and that window just keeps this room cold. So I just tend to put it on just one bar so I don't use the motor on it because it uses electric"

Such considered and purposeful use of these devices was common across the interviews suggesting that central heating systems alone were not seen as sufficient, or maybe that they were less predictable in their effectiveness or cost. Allmark and Tod (2014) found that central heating systems were thought of as "veiled" in terms of their functioning and their cost, in a way that did not apply to visible stand-alone heaters. Other interviewees also mentioned that they used portable electric heaters on only partially because of the cost of electricity.

The decision behind using additional heating devices cannot be said to only exist in homes where keeping warm is problematic or heating systems are inadequate. In a variety of homes, new builds and those with retrofit heating systems, Wrapson and Devine-Wright (2014) also found additional heating devices may be used. Questioning whether decisions to use these devices is driven by need for heat leads us to notice that the visual sensation of devices with in-built flame effect lighting is sometimes a part of people's perception of (thermal) comfort.

"With the glow and the flames it just feels better doesn't it?...we often do that because it looks more...homely...more comfortable...just to have the light on yeah"

Mrs Evans

This device could be used to provide warmth and, as shown above, the perception of comfort without the energy consumption of providing heat that could be expected. Recognising why devices may be used at different times and for different uses is important when it comes to providing support or advice to those struggling to keep warm affordably, a theme we will return to later in Chapter 6.

5.3.3. Using additional clothing and other items

The third coping tactic was to sustain body temperature and keep warm not through using heating, but through layers of insulation provided by clothing and other materials. These actions included wearing additional clothing and using additional items (such as blankets and hot water bottles). Dressing gowns, vests, hats, thick cardigans and jumpers, and blankets were often used by our participants as well as their "normal" clothing. For most participants, these items appeared to be part of their regular routine during the wintertime.

I: "so aside from heating, are there other ways that you keep warm at home? Are there particular clothes that you wear if you are cold?"

Mr Jones: "oh I sit in my dressing gown and all."

I: "your dressing gown. Over your clothes?"

Mr Jones: " yeah yeah me dressing gown. Especially if it's very very cold like...I'll put that on and I'll go to bed in it and all. I'll get undressed and put my pyjamas on and I put me, put me dressing gown on and I'll go to bed with me dressing gown on."

I: "and do you feel warmer doing that?"

Mr Jones: "oh aye. Yeah yeah."

I: "and do you feel comfortable doing that?"

Mr Jones: "yeah yeah champion."

When discussing this, most participants appeared content with wearing their additional layers and did not appear to see it as a problematic practice. These additional items were used in order to be 'comfortable' and as long as the resident felt benefits in these terms then they were content. In the few cases where these additional items did not provide comfort alongside greater warmth residents appeared to be less content. In homes with more than one resident, it was common for them to report that individuals wear and use different items because they did not all feel comfortable at the same temperatures and/or wearing the same level of clothing. A variety of studies have observed these strategies but not all have explored how residents felt about employing them. When interviewing older people, Day and

Hitchings (2009) found that wearing or using additional items can be stressful and uncomfortable, eliciting feelings of embarrassment and age stigmatisation. Harrington et al (2005) reported some people felt comfortable wearing additional items that that others were fervently against this idea. Burholt and Windle (2006) found that their respondents on a lower income wore extra clothing. Limited access to alternative options due to financial constraints may therefore affect people's outlook on the strategies that they choose to employ.

5.3.4. Adjusting daily routines

A fourth coping strategy was for people to adjust their routines in order to achieve, what they considered to be, a reasonable level of warmth. For several residents, they described situations when they would have liked to have turned the heating on but chose to undertake a different strategy due to the cost and/or delayed sensation of warmth of the central heating system. Going to bed early and keeping a warm coat on when they'd come from outside of the house were strategies used in these situations. Discussing this revealed that in a few cases these strategies were markedly different from resident's preferences as shown in these two examples.

Ms Jackson: "…a couple of times, actually more than a couple of times when I've gone to bed early I really have been quite cold. And I've gone to bed because I'm quite cold whereas if the house had of been warmer, if I think I had a smaller one with very efficient heating, then I would probably have read longer and then you know gone to bed whereas a few times here. I would say at least a dozen, probably more in the winter, I have actually gone and got into bed because I'm cold and I've been still cold for a little bit."

-

Mr Wright: but er another way of whatsit saving is with whatsit...we don't go bed early do we,

Mrs Wright: not really

Mr Wright: we don't go bed early er or maybe its gone twelve o'clock before we've gone to bed some days and er but when its really cold...we tend, well can't see the point in whatsit putting the heating on we'll go bed. Well I've seen us be in bed for about half nine haven't we

Mrs Wright: yeah I sit there and have a read.

Mr Wright: yeah we sit there and have a read or you know...its alright we do it that way we try and cut down that way

There was some suggestion that it was not logical to incur the expenditure of turning the heating on when it would not provide relatively immediate heating with

only a few hours before they went to bed. Another way in which some residents talked about keeping warm without using more energy or without it costing more than necessary was through adjusting where and how they would carry out tasks. Again this changed revealed a strategy that was different to the residents preference.

> *It was so cold but what I do is I've found that I adjust my pattern. And thats why there is a pile of debris here [in the living room] theres loads of receipts and things in here so what I've kind of done is kind of adjusted to kind of more or less operating in this small [area] so what I would ideally do the conservatory and the table, its not a conservatory...thats a lounge its one of those with a dining table so it double as a office you know with the idea that I put the laptop on it and the printer and then when I...but actually how I've changed my behaviour is often to do things here and to have a laptop in here on my knee do as much as I can in here. Which is, I've more or less been operating in here because of the temperature like you can see the great big slippers are now on. You know and in that kind of attempt to stay warm I guess...so very rarely do I have this extra heating thing on but sometimes when I need to be printing and sitting or long periods its too cold.*
>
> *Ms Jackson*

Here the resident moves from doing office tasks where they would in warm weather and would ideally like to be, to a room that is heated in the winter anyway but not designed for such a use. Nonetheless, residents talked about both of these strategies as a matter of common sense and logic, rather than of hardship.

5.4. "I may be aged, but I'm not infirm": reflecting on coping and ageing

Whilst these four examples of everyday coping strategies were all discussed, it was striking that they were rarely talked about in explicitly negative terms, but rather just as 'what they did' and as forms of common sense. Interviewees readily spoke about what they wore around the house and what they did with their heating appliances, seemingly without any great difficulty. They largely appeared content with how and why they were keeping warm in the ways they discussed, but acknowledged that there would be a point at which certain, more problematic compromises would have to be navigated.

The main possible change talked about by interviewees was the prospect of rising energy costs and expenditure on energy bills, which as noted earlier, remained a constant underlying theme throughout discussions of heating the home and keeping warm in general. Often there was a sense of uncertainty about maintaining the same ability to keep warm in the future because of the (rising) cost of energy. This uncertainty was informed by reflecting on how much energy prices had risen in recent years, for example:

Mrs Evans:" no if we're cold we're cold and we turn the-"

Mr Evans: "if we always say we're not guna go cold, if we can't pay them then they can send us to prison! It's as simple as that."

Mrs Evans: "they'll feed us won't they. No no at the moment we're fortunate that we can carry on. How long for is another story."

For other interviewees, further responses that they felt they might have to make included increasing the amount or type of additional clothing worn and the time they would go to bed to reduce the heating period. When these compromises were discussed, there were negative connotations with undertaking more 'adaptive' strategies than were already taking place. For example:

I: "okay and say energy prices [rose] and your income had decreasing and you were putting on thicker socks and fingerless gloves, how do you think you would feel about that? ....would you feel comfortable doing that?"

Ms Jackson: "no! I mean I would you know being like you know you would do it, just like you know you make all the compromises now like covering yourself up with more clothes than you really want to or sitting and working from here rather than there [the conservatory] so I suppose you would do the sort of things but you know somewhere you would take the measure you know maybe stay in bed longer maybe go to bed you know. But somewhere I think that impinges on your consciousness as well."

When there was this 'future-casting' within the interviews, the tone was that energy expenditure was inevitably going to be a large part of household budgets in the future. Whilst residents discussed the changes they could make to what they wore and what they did day to day, it was noticeable that there was a lack of speculation about any changes that could be made to the thermal performance of their home. In this sense the discussion was all about their own everyday responses and adaptations, not improvements that could help them more fundamentally.

People evidently 'cope' with their situation. Whilst experiencing hardship and struggling to pay their energy bills, they feel they are managing i.e. they are paying their energy bills, they are not in debt but they might be negotiating or shifting things around in order to do this. Also they may not be having their heating on as much as they'd like or as much as they could in some circumstances. This is explained in direct relation to the cost of energy. The situation is 'managed' before they cannot afford to pay and/or before they see significant implications on their health. This all has implications in particular for the relationship between residents and local organisations that will be discussed in Chapter 6.

This preference to be coping is matched in the language used for who is labelled by the term fuel poverty. It seems inaccurate or inappropriate to use the term when

those who do not self-identify that they are living in adverse circumstances that are categorised by others as a certain condition. For grassroots organisations on the ground, fuel poverty is not a term they favour to use with the residents. The term may imply that they use the official government definition and households may not react positively to being assigned a label of 'poverty'. When people are assigned this label (for income poverty in this instance) they may become part of poverty itself and their personal characteristics get pushed to one side (Green 2006).

Another way in which residents acknowledged that they were coping *now* but that changes may see a different scenario in the future was with reference to the ageing process. There are three dimensions to be drawn out here: how aging influences how people were able to keep warm, their aversion to stereotypical images and to seeing themselves as 'older', and attitude towards debt and energy rationing due to cost.

As explained earlier interviewees had different levels of health with a range of health concerns that could contribute to their experience of trying to keep warm at home. Whilst in section 5.2 it was recognised that pre-existing health conditions could affect the way people perceive or feel the cold, some interviewees' health also influenced *how* they were or were not able to keep warm. For example, one interviewee rarely used her gas fire explaining that, whilst she did not feel she needed it, she would not manage to reach down to the level of the controls of the fire due to her lack of mobility and flexibility.

> *I: erm so you said you didn't use this [gas] fire do you have any other portable heaters that you use?*
>
> *Mrs Wood: no no, to be perfectly honest its getting down to it because since I've had me hip done I can get down but I can't get back up again so (laughs) don't get old! Its not fun!*
>
> *I: do you think there would ever be a time when you would like to use it?*
>
> *Mrs Wood: probably! I might!*

This is a very tangible effect of a health problem associated with ageing on one's access to devices that could provide warmth. It is also an example where the provision of a physical resource that could improve a householder's thermal comfort or access to affordable warmth, is not necessarily a guarantee of achieving that warmth.

In more fundamental terms, most interviewees did not see themselves as an older person but rather saw other people (of a variety of biological ages) as what they would call 'older'. They maybe had felt older in the past or could imagine feeling older when they were unwell or struggling with an illness but were resistant to that label at

the current point in time. There was some instances where residents exhibited signs of not wanting to *appear* 'older' through their actions to keep warm, as other studies have also found (Hitchings & Day 2011; Day & Hitchings 2011). They exhibited embarrassment or concern at actions that could be perceived as stereotypically that of someone old or frail. In one interview, I asked Mrs Wilson why she had just suggested she would not use blankets, when in the house, to keep warm.

> *"well I would[use blankets] if I was cold but I mean not if its just… my my little nephew came once and my husband, before, you know it was when he was alive, we had electric fires and he was always freezing cold and his legs…so he was wrapped, his legs up in a blanket and he [the nephew] came with his mum and his mum works in an old people's home, and he said, "uncle" he said "you remind me of a person in an old peoples home, he said, with the blanket cause I go with mummy and they've all got blankets around them" (laughs)*
>
> *Mrs Wilson*

Another interviewee told me how her elderly father has an electric underblanket on all night despite claiming that he turns it off because he does not want to appear frail, as his health has drastically declined over the last year. In both cases there is a focus on what other people think of their behaviour rather than a personal preference not to undertake this activity. When considering other people's opinion is when householders expressed reticence towards what they were doing and why. Many interviewees talked about having visitors and feeling aware of how warm or cool the indoor temperature was, although the actions taken as a result varied greatly with some not feeling able to change the temperature due to personal preference to changing the temperature considerably from their usual routine.

Whilst not explicitly mentioned by my interviewees, previous studies (Anderson et al. 2012) found older people were proud of their frugal approach to life. This may help to explain the attitude of their strategies being seen as 'common sense' rather than any form of hardship, as may be the case for other generations or age groups. Part of the conversation with Ms Mitchell reflected such a position:

> *Ms Mitchell: most people I think, feel the same as I do, I think with my age group yes.*
>
> *I: what do you mean by that?*
>
> *Ms Mitchell: I think they're conscious of it [concerned about energy bills] and there they've probably come from a similar background where they had to watch the money in the [19]50s, you know there wasn't a lot of money around… I think there was this kind of attitude of kind of not being extravagant with things. People my age, a lot of my friends who are my age are are…its sort of ingrained they feel they shouldn't waste things so they haven't got out of that habit so I think so yes quite a lot of them*

have got a lot more money than me, they've haven't got, the one I said who doesn't have her heat on hardly at all, she's got quite a bit of money but doesn't want to waste it. So its quite, it is an attitude so perhaps the age group has a lot to do with it.

What people feel that they are able to do and how they would like to appear affects the ways in which they are able to achieve warmth. The meaning of ageing and being older varies for the interviewees with life experiences influencing their lives differently. This also influences how they view other people's experience of being older.

5.5 Judgements, coping and the happy poor: locating justice in the lived experience

As established in Chapter 2, the use of the capability approach (also called a framework) has the potential to push forward how we understand keeping warm in everyday life. Recent years have seen an increase in the literature that has found value in using the capabilities approach in understanding energy demand and energy poverty specifically (Walker 2013). The capability approach positions incomes as only instrumental in enabling people to achieve what people seek to be able to do.

Fuel poverty, using this approach, is about an individual's (in)ability to convert income into adequate energy services. It is not to deny that resources are important but that they are not the *only* aspect of importance and that functionings and capabilities are the ultimate normative concern (Robeyns 2005). Furthermore, given the importance of freedom and choice within the capability approach the argument here is that it can be people's choice to not heat their home adequately, but where the (in)justice lies is with people's access to that choice i.e. whether people have the capability to keep warm and therefore achieve things that they value doing or being. For example, aiming to have a warm and comfortable environment to study and concentrate in is to see keeping warm as a key capability to the achievement of a key functioning of an effective education (Walker 2013).

But how might the capability approach be applied to what I have discussed in this chapter? To look back at the data analysis is to wonder how different factors affected interviewees' ability to keep warm. There was one dimension that played a role across all themes of analysis: health. It played into everyday lives in a variety of ways. Despite the interviewee group ranging from being active and considering themselves to be well, to having terminal and debilitating diseases, health was often referred to when talking about change and time. It leads me to question how health is configured within people's capability to keep warm.

A central argument by Sen for the preference of capabilities over commodities as an evaluation space is the fact that people have different conversion functions for the same commodities. There is an acknowledgement within capability approach that not everyone will have the same ability to convert income or resources into the same capabilities. There have differential needs in order to reach the same outcomes. For example, a person who is older may need more income to achieve the same functionings as younger people due to care needs, housing adaptations and so on (Sen 1999:88).

“Two people with identical capability sets are likely to end up with different types and levels of achieved functionings” (Robeyns 2006: p101)

Of Sen's five sources of variation between real incomes and their translation into advantages, one is personal heterogeneities where physical characteristics mean that needs are different (Sen 1999). A capability is the combination of an individual's capacity to do something combined with the context of particular enabling (or disabling) mechanisms. However there is something more to be said for how health may be understood in terms of a person’s capability to keep warm. It is useful to turn to investigate different levels of capabilities. So far, Nussbaum’s specific list of capabilities has not been discussed because it does not fit the purpose of using capability as a framework, but Smith and Seward (2009) do make a useful distinction between basic capabilities, that are the most fundamental to survival, and secondary capabilities that are more specific and the materialising of one or more basic ones. There is two ways that I can see how a person’s health can be the subject of focus when discussing basic and secondary capabilities.

Health can mediate the relationship between basic and secondary capabilities, bringing the importance of the human body into view. This is in two ways: one through *what* is required to ‘keep sufficiently warm’ and the second through *how* health concerns can restrict or limit a person’s ability to achieve the same equivalent end outcomes as other people with the same resources. Just as people need different incomes to achieve equivalent outcomes so do people need different (access to) energy services.

Firstly health is a basic capability that can be thought of as a precursor to the secondary capability of ‘being able to keep sufficiently warm’. According to biological/medical narratives poor health and/or ageing mean that older bodies require higher indoor air temperatures to avoid harm to health. This confirms the idea that (poor) health (and ageing) can influence the secondary capability of keeping sufficiently warm as this narrative suggests that a certain temperature (range) is required for achieving ‘keeping sufficiently warm’.

Secondly, poor health and mobility can mediate people's access to physical resources that would ordinarily allow them to access energy services, particularly warmth, affordably. People's needs and requirements to achieve the same ability to keep warm as a secondary capability can vary according to their health. Health can mediate the relationship between the resources or inputs (e.g. level of energy) people have and the outputs (e.g. good health) they can achieve. Take an imagined example. In a rural terraced cottage, a backboiler heats water to go to a number of radiators around the house. The burner is heated by a solid fuel stove. Gas is unavailable in the area and because of its rural location and difficult access to a small garden, LPG from a tank would be difficult and expensive. Whilst the resident has sufficient income for solid fuel for heating, their health has deteriorated in recent years with age and so they are unable to keep a fire going during the winter because it requires them to physically lift the amount of fuel through the house to the stove. Therefore she lacks the resources to consistently achieve the secondary capability of keeping sufficiently warm which is a precursor to the basic capabilities, despite, that with previous good health and mobility, the resources might have been appropriate and thus she did previously possess the capabilities. Therefore support to tackle the problem of access to adequate energy at an affordable price would require different mechanisms to take account of householders' differential needs.

Using different levels of capabilities enables how health might alter what is deemed to be needed to keep adequately warm, adding an understanding of how there is diversity in what is needed to deal with the struggle to achieve access to adequate warmth.

5.5.1 Adaptation and coping

It is not just in this relatively direct way that the capability approach can add depth to the analysis but it can also suggest an explanation for why we see people coping with a situation that to others, admittedly, may seem unjust. Shifting to the language and ideas of adaptive preference formation and the 'happy poor' helps to make links to why people might seem to 'cope' with their situation and not recognise their hardship. Formulations of capabilities have two parts, freedom and functionings. Freedom is the real opportunity that we have to accomplish what we value, placing agency as the ability to act on what matters to a person as centrally important. With this idea in hand, we can turn to look at how many people may choose to live and how they perceive or judge their own state of being. I have shown that many of the interviewees appeared content with their situation despite acknowledging that they were not necessarily in a stable/healthy financial situation and/or not managing to

keep warm. Chapter 5 (sections 5.4 – 5.5) have shown that they could identify ways in which they were coping with what they had available but they were not talking about, and were potentially unaware of, the severity of their situation and/or how the situation may be viewed or categorised by others. I have already discussed why I find the use of words such as 'coping' and 'struggling with' problematic in the data at the start of this chapter, but it is here that I find a suitable alternative.

" 'Adaptation, in its broadest sense, refers to any action, process or mechanism that reduces the effects...of a constant and repeated stimulus (Fredrick and Loewenstein, 1999:302). If this constant and repeated stimulus is an event that continues to affect one's life...people learn to deal with it and adapt to these situations"

(Teschl and Comim 2005 p238)

Adaptation in these terms captures the idea of what the residents see themselves as doing, because it maintains the idea that they are making conscious decisions or effort whilst suggesting they do not necessarily feel that they are in a negative situation or a problematic situation that needs 'coping' with, but rather making changes in a situation that requires a change in choices. To adapt appears to be a positive action, process or mechanism that residents have chosen to do whilst to cope suggests something done under duress. Coping can be seen as emphasising an active role of the person rather than automatic and passive processes of adaptation (Diener et al., 1999). However the problems lay in the fact that the resident themselves does not talk as if they are aware of what their 'situation' is. It is a relatively gradual and/or long term state that can be difficult to detach from all other aspects of their everyday life.

The idea of adaptation in this sense is part of Nussbaum and Sen's capability theory as they recognise that the approach is not about satisfying people's existing preferences (Nussbaum 2011). As found in a study of income poverty (Shildrick & MacDonald 2013) people are not willing to use the language of poverty to describe their circumstances and instead they normalise everyday hardships. However whether the residents can assess and compartmentalise their life or not does not stop other people from doing so - through need or otherwise. And here we find why it is helpful to have ideas from the capability approach incorporated into how the data is being interpreted.

My analysis has focused on the ways in which residents adapt to keeping warm affordably but as should now be clear, there is a distinct lack of the residents' seeing their situation as a typically problematic or a state of hardship. By looking at

capabilities in this context, we can begin to understand why people may not take action to change their situation. In the terms of adaptation as laid out above, because of unpleasant or unsuccessful previous experiences, despite motivation to change, motivation is low because any action or effort is expected to be ineffective. To ease this “cognitive dissonance”, strategies are used which changes people’s beliefs or perceptions of not being well-off and result in a state of resigned adaptation (Teschl & Comim 2005). In Sen’s words:

“The underdog learns to bear the burden so well that he or she overlooks the burden itself. Discontent is replaced by acceptance, hopeless rebellion by conformist quiet and...suffering and anger by cheerful endurance.”

(Sen 1984:309 cited in Teschl and Comim, 2005).

This is problematic in its consequences because being resigned in this sense removes incentives to take action to change the situation as they deemed themselves to be satisfied with it (Olson & Schober 1993). Their perceptions have an influence on actual states and outcomes (Sen 1990). In clear terms of the capability approach, adaptation of preferences can lead to distorted self-perception that can lead to people becoming "implicit accomplices" of injustices of the system as they “accept the legitimacy of unequal order” (Sen 1990:126). The concern is that those with low expectations of a situation, such as not achieveing adequate energy services, will be satisfied with relatively little improvement. This has the potential to result in an unequal and injustice situation that raises questions over how a more objective measure of outcomes might be enacted in the (lack of) achievement of adequate energy services. Chapter 6 will explain why this development of implicit accomplices can be problematic for the myriad of actors involved in the claim to tackle the problem from a variety of scales.

5.6 Conclusions

"There is an everyday voice and mode of claim making that needs to be incorporated into our understanding of justice, environment and social difference (not just the voices and modes of the politically engaged)" (Walker 2012: 7)

By analysing the everyday lives of residents we start to see what the statistical way of knowing in Chapter 4 is trying to measure and monitor. Chapter 4 has laid out a way in which there is classification of people under the category of ‘fuel poor’. I have established the forms of knowledge that characterise such a classification and the tensions that result from its operationalisation. This chapter set out what the experience is for older people and began to dig into how complex and messy life is in

a way that differs from the relatively neat categories that the statistical definition tries to sort energy-related life into.

By bringing in the stories of those that I have interviewed and the lives I've witnessed, the experiential way of knowing is shown to be characterised through everyday practices that householders take to balance their needs to keep warm and provide other energy services with the financial physical and social costs that they can deal with.

Not all older people are fuel poor, but some, including those in our study, are undoubtedly living in situations in which the rising cost of energy is significantly shaping the ways in which their energy services, specifically warmth, is being locally managed and experienced. The importance of keeping warm was recognised across the group of interviewees, particularly in relation to keeping healthy in older age and living with problematic health conditions. But aspirations to be warm and comfortable were set in a context of continual concerns about bills, and of getting on with life in a way that tries to cope with the dynamic and problematic coming together of the different material, social, economic and climatic elements (Harrison & Popke 2011) involved in trying to keep warm on an everyday basis.

Using the capability approach, an understanding of fuel poverty is seen through mechanisms of coping and adaptation to the householders' situation. Householders reflect on their lives bringing a fluid, changeable understanding forward. In the case of these participants, changing views reflect the potential for ageing to shape their ability to afford adequate energy through rising energy costs and health concerns. It is argued that, being informed by the capability approach, health structures a person's secondary capabilities that form a precursor to basic capabilities through what is required to keep warm and how health can restrict people's ability to achieve the same outcomes.

In explaining that residents may adapt to their situation to the extent that their perception is altered, I have argued that householders own perceptions can lead them to become "implicit accomplices" of the injustices of the energy system. This is crucial when understanding the experiential way of knowing and its consequences. In Chapter 6 I will question whether fuel poverty has in the past, and should be in the future, about equalising the capability to *access* adequate temperatures or equalising people's achievement of adequate temperatures. The presence of medical evidence suggests that there are grounds to make sure everyone achieves such temperatures but to use a capability approach as a moral framework can be seen to problematise.

Processes of categorisation are not involved in this way of knowing fuel poverty. The householders' knowledge of fuel poverty (their own and in general) is drawn from

their experience of trying to afford adequate energy in their current financial and material circumstances. Some householders do though develop their understanding by comparing themselves and their situation with that of other people. The understanding of fuel poverty that the experiential way of knowing brings forward is therefore not only *about* the householders, but also formed through their own perceptions of where justice is and is not located.

The next chapter investigates the procedural way of knowing as positioned between the experiential and the statistical ways of knowing fuel poverty. Having discussed both of these this thesis moves to focus on the procedures and processes of the local organisations in three areas of England in order to draw out how this ways of knowing is characterised, the understanding it brings forward and crucially we thoroughly start to see where the ways interact and interrelate.

Chapter 6: Warming up the community - procedural spaces of fuel poverty

6.1. Introduction

Field note excerpt January 2012:

We're sat in the car waiting for the resident to come back from work. We're early for our appointment so as we're sat there I look at the house, look for signs I've become acclimatised to. The street is a short terrace just off the main road. Tidy, quiet, normal all come to mind. Looking closely, the bottom of the once-white net curtains are greying slightly and the windows frames have seen better days. There's no lights on but it's not very dark yet. Out of the car, the door of the house opens and I catch the first glimpse of what is to come. I'm getting my coat and bag over my shoulder as I see a room or perhaps it's a storage area. They go in and we follow without a second thought and I'm there. Stood, there is no temperature difference from outside. My cold feet on the concrete of the floor with a threadbare carpet visible in patches, though not where I am. Stood awkwardly I take in my surroundings. The smell of damp filling my head. Time stops as the shock of walking in halt my breathing.

Before embarking on fieldwork shadowing organisations on home visits to people wanting energy efficiency and bills advice, I had spent 12 months reading academic literature on energy consumption, poverty, being older and following the media on energy and housing policy, green deal, benefit changes. There was plenty of academic grounding for the work I was planning, the academic world and the 'real world' on this subject seemed to overlap and intermingle. From this, I intended to shed light on experiences of UK poverty and the criterion for financial and energy efficiency support that can leave people, already with little, without the support and

help that they need. The ethics procedure had opened up the risks that I would need to be aware of and prepare for practically, I'd read gerontology and poverty research and through all of this, come to understand some of the situations that I might encounter as a researcher in the homes of this currently faceless group of the population that I was just ready to research. I'd spoken with the organisations I would work with and we shared a sentence or two about the fact that some of the situations that you arrive at can be difficult. I'd passed back affirmative gestures that I understood what I was agreeing to be part of.

The reading was finished and here I was ready to observe the experiences of 'the fuel poor'. Armed with the literature, the ethics review and my good nature. To see the good work that the organisations are doing, to see where they could improve. To smile and reassure whilst ensuring that I have an academically appropriate number of residents for my follow up interviews and being still sensitive to people's situation.

But I hadn't practiced my manner. My body language, my facial expressions, my observations skills, my ability to know when to sit and nod and how to phrase a question when an opportunity arose. How to interact with the resident whilst I sat in their home in my coat, wishing I had gloves on, wishing the tops of my feet that were visible were any colour other than blue. Where to sit in the room when there was nowhere clear or when there was just one seat with two three or four of us present. How not to show relief when we walked into a warm, comfortable home with a cup of tea ready on the coffee table after a 'difficult one'. But the most difficult thing of all that I had not thought about seriously was how to deal with being in the homes of strangers every day for two weeks, trying to make 'good research' and trying to keep going.

As a researcher I always knew that the most I would be able to give someone was a smile and non-judgemental chatter over a cup of tea, but the energy advisor I was with, they could do something.

The above is an edited excerpt from my research diary and is intended to illustrate the everyday settings that advisors of the organisations that this chapter focuses on are working in. Struggling to pay for, what many see, as a basic need or even something we have a human right to (Walker & Day 2012; Boardman 2010) in a country where we claim to be 'developed' and can look after those with less in society, seems immediately wrong. But what is happening at the local level to help people in such situations? As the first section of this chapter will go on to explain efforts to tackle fuel poverty beyond the governmental national scale are relatively uncoordinated and dispersed. Many different schemes have attempted to develop and enable local action on fuel poverty. For example, the new Green Deal, which was imminent at the time of fieldwork in 2013, expected a range of organisations to work with residents across England including those that were fuel poor, or potentially so. These organisations, three of which I have studied, were key players in their area at providing support and they continue to this day to be a presence within their communities. But why is this local scale important? Because what I characterise in this chapter as a procedural way of knowing fuel poverty sits *between* the other two very different ways of knowing I have explored in Chapters 4 and 5 and yet is at the same time expected to *satisfy* in some sense the expectations or conditions of both of them. Organisations are expected to deliver in both directions: providing improvements to the lives of residents in their home and (ideally) also contributing to reducing the overall numbers in fuel poverty – although the disconnect between the real and the statistical has already been shown to problematize that relationship.

The procedural way of knowing fuel poverty, as with the national categorical (chapter 4) and the experiential (chapter 5), is an understanding of fuel poverty that draws on particular forms of knowledge. This way of knowing is constructed through the processes and procedures that organisations tackling fuel poverty use and follow to reveal and understand the situation in their area and to provide support to their residents. Few of these organisations have consistent and stable funding. They secure their resources from a variety of sometimes rather ad hoc and fragile sources, each achieved resource flow being accompanied by a particular rationale and set of objectives, performance criteria and expected outcomes. These criteria and outcomes may or may not relate explicitly to the national fuel poverty definitions and may demarcate the 'target group' to be assisted in distinct and specific ways. In many cases the organisations also take part in national and regional discussions on new policies, definitions and proposals. This means that in some part, their work is subject to and framed by the national definitions, or the statistical representation, of what is at stake, whilst simultaneously they are working with people in their homes and

engaging with their experiential forms of knowledge to provide solutions relevant to their everyday lives. This way of knowing is the third and final in the sequence because it is best imagined sitting in between the two others, and it is through relationships in both directions that the organisations' work can be understood.

It is not just the organisation itself but the processes and the procedures that it is involved in that creates this certain way of knowing fuel poverty. It truly is a way of *knowing* it as it is how the organisation assess a person's needs, judge what might be able to help them and then justify why they have provided support to some over others. In some cases it can be as straightforward and tangible as 'the household does not have central heating' and they are therefore provided with it. In others it can be far more complex where the advisor and/or the organisation feels that the resident is in need of help but the exact help they need and crucially they are eligible for is less clear.

Just as I have positioned the procedural way of knowing as between the two other ways of knowing, the local organisations at the centre of this work can also be positioned as in between. In-between residents and fuel poverty schemes, in-between other organisations in the community, in-between different levels of governance. The term 'intermediary' is becoming used to describe organisations in such positions and roles, though a common conceptual definition does not exist (Moss et al. 2011). According to Moss et al (2011) it is their work and their relations that gives them intermediary status not a specific organisational structure. It is also helpful to think of what work these intermediaries do. As Marvin and Medd (2004) describe they bring together and mediate different interests; the interests of those needing help and of those (schemes) offering help in this case. Intermediary organisations can also, work as a go-between across different scales, often between policy or regulation and local practices (Medd & Marvin 2011).

This chapter aims to look at not just the actors involved and the local procedures of classification of which residents might be considered to be in need of help (and therefore by some metric fuel poor) or not, but also what types of information are being prioritised, included and excluded to construct a procedural understanding of fuel poverty.

This chapter is divided into three main sections. Firstly I will explore how national policy has acknowledged and encouraged, in various ways, decentralised efforts at fuel poverty alleviation beyond the deployment of blanket national measures. Three organisations in England that were the subject of ethnographic observations will be introduced as examples of this local scale of action. Secondly I will explain how fuel poverty is assessed, classified and categorised through the operations, processes

and procedures of these three organisations. Thirdly and finally, I will critique the 'solutions' that are provided by the organisations to residents in order to help and support them, in the context of the insights already achieved in analysing the experiential and the national categorical ways of knowing fuel poverty in Chapters 4 and 5.

6.2. Why local?

6.2.1 From national government to local actors and back again

The UK has a relatively long history of initiatives and schemes to tackle fuel poverty, given as explained in Chapter 4 that it was directly identified as a policy issue by the 1997 Labour government (Boardman 2010). Over the last decade there have been a number of different schemes in place, both treasury-funded (Warm Front, Winter Fuel Payment) and funded through levies on energy bills (CERT, CESP) with action falling into one of three categories; income support payments, home energy efficiency improvements and fuel price regulation.

Scheme	Type of assistance	Eligible people	Eligible tenure	Dimension of fuel poverty tackled
Warm Front (2000-2012)	Grants for efficiency improvements – heating and insulation	Those claiming certain income-related benefits	Owner occupied or private rented	Energy efficiency
Warm Zones (2001 - ongoing)	Hard and soft energy efficiency measures instigated by a partnership of organisations	All householders in the zone	All homes in the zone	Energy efficiency and income
CERT (for private householders) (2008-2012)	Energy efficiency measures in order to achieve certain level of carbon/energy reduction	Customers of each energy supplier with 40% to the 'priority group' (i.e. the 'vulnerable')	Private and social housing	Energy efficiency
Cold Weather Payment (UK) (1995 - ongoing)	Income support payment trigger when the weather receives certain low temperatures	Those claiming certain income-related benefits and if they have a vulnerable person living in the house	All types of home	Income
Winter Fuel Payment (UK) (1997 – ongoing)	Income support payment every winter for the householder group	Those qualifying for Pension credit	All types of home	Income
Warm Home Discount (UK) (2011 – ongoing)	Rebate on electricity bill (£120-£140)	Older people on low incomes OR a broader group defined by the energy supplier as vulnerable	All types of home	Income

Table 6.1 Current and past schemes that have been designed to tackle fuel poverty in some way in England

Income and home energy efficiency are tackled through schemes with an element of direct contact with the householders. Actions on energy prices bypasses direct interaction with the householder, working through requiring energy suppliers to have social tariffs designed to reduce energy costs to the vulnerable and/or low income households.

Looking at the different types of support raises questions about how actors have different roles to play in delivering specific national schemes and making progress in their local area. Efforts to tackle fuel poverty are not undertaken through one concise policy but through a range of legislation, responsibilities and reporting of various organisations, governmental and non-governmental. The following section lays out the different elements that come into play to produce what could be characterised as a 'landscape' of fuel poverty action.

Cross-cutting national fuel poverty-related powers and responsibilities exist, but they have not been purposely aligned with national fuel poverty objectives and no local authority policy domain has addressed fuel poverty as a specific objective (Roberts & Baker 2006). However, policy documents have, for over a decade, made it clear that local bodies, local authorities in particular, have a substantial part to play in the 'eradication' of fuel poverty in England.

"Locally-led programmes can be highly effective in utilising local knowledge, joining together local partners and engaging local residents." (House of Commons Environment Food and Rural Affairs Committee 2009 p45)

Past governments have tried to make this clear through indicators and objectives designed to monitor the situation but exactly how progress should be achieved has been unclear. Responsibilities that can contribute to tackling the causes of fuel poverty are positioned at a local scale such as housing policy, regeneration schemes, social services and benefits provisions (Roberts & Baker 2006). Different local authorities will experience varying challenges in each area, leaving them to interpret what is required of them in order to meet their responsibilities to be involved in implementing national policy.

Nonetheless, there are a number of legislative requirements placed on local authorities for addressing issues related to fuel poverty. The Home Energy Conservation Act (The Stationary Office 1995) had a goal to secure domestic energy efficiency improvements, meaning local authorities had certain requirements placed on them. Every local authority (they became 'Energy Conservation Authorities') is required to submit an 'energy conservation report' to the Secretary of State identifying measures that improve the energy efficiency of domestic properties in their area and their annual progress on fuel poverty alleviation (DEFRA/DTI 2001). This

was done in March 2013, to foreground the new Green Deal and ECO schemes, and update progress reports were produced in early 2015. What must be submitted under HECA can be interpreted differently meaning that each local authority's submission can vary considerably. Some create complete affordable warmth strategies and others have more sparse strategies as other targets and requirements for reporting have made HECA unnecessary (Energy Saving Trust 2012). However all LAs with housing responsibilities are required to report on energy efficiency of the housing stock in their constituency (DCC/CRC 2010); a useful piece of knowledge for initial efforts against fuel poverty. In revised guidelines for what LAs are required to do under HECA (Department of Energy & Climate Change 2012b), the national fuel poverty statistics discussed in Chapter 4 were cited as a key starting point for tailoring action. Throughout the government's discussion of HECA is the emphasis on local authorities making ambitious targets and expectations of themselves backed up by the action that is available to them as well as using the resources and statistics produced by the government to provide an informed starting point and place from which to monitor their progress (Department of Energy & Climate Change 2012b).

In the social housing sector, the Decent Homes Standard (2000) is the main policy for tackling fuel poverty; setting certain standards that must be achieved in this sector (Department for Communities and Local Government 2006). This covers the maintenance of the building, the standard of facilities and the level of thermal comfort of the home. This standard has improved SAP ratings with 93% of all social homes being classed as 'decent' by the end of 2011(Homes and Communities Agency 2012).

There are a number of other national aims that local authorities are expected to contribute to e.g. a minimum energy efficiency standard in the privately rented sector and installation of smart meters to all households. These are taking place, bubbling away, with little explicit link to 2010 and 2016 fuel poverty targets or otherwise but it is less 'regardless of' and rather 'in conjunction with' as these targets *are* expected to enable fuel poverty to be addressed.

The consequences of fuel poverty (ill-health, debt for example) are predominantly felt at a local level and so it is local services that have to cope with the negative effects, while they can in turn benefit from the positive consequences of tackling fuel poverty. There is discussion associated with how much fuel poverty or energy efficiency can financially save different services (Nicol et al. 2010) – health, local departments, emergency services and the private sector – though it is difficult to find a robust methodology to put figures to (Hills 2012). Recognising these benefits is

a significant rationale for local action and for involving organisations in partnerships at this scale.

The local authority then is often championed as a central actor in the presence of locally based schemes and their position for enabling the interaction that is required to tackle the multi-dimensional nature of fuel poverty is often underlined, as shown in the UK Fuel Poverty Strategy (Department of Energy & Climate Change 2015b). However the importance of partnerships and networks at a local level is also emphasised in terms of the resources needed to tackle fuel poverty, most significantly in the UK Fuel Poverty Strategy (Department of Energy & Climate Change 2015b). The Warm Front scheme and Community Energy Saving Programme (CESP) found networks of relationships between partners to be crucial to reach those in need (Bird et al. 2010), citing these relationships with stakeholders as fundamental to the success of the scheme and to reaching the most vulnerable homes (Department of Energy & Climate Change 2011a). Government endorsements in major policy documents and the guidance produced on the implementation of different national schemes, repeatedly extols the virtues of partnership working, especially with local authority involvement (Morris et al. 2015), as being a rationale for local action on fuel poverty.

But who else, other than the local authority, is there to tackle fuel poverty? Who are these crucial partnerships and networks with? As will be described in the following sections there are a number of local non-governmental organisations that are involved with tackling fuel poverty across England. But first, it is important to draw out three ways in which it is claimed that local organisations are well placed to interact with householders and deliver fuel poverty schemes.

Firstly, getting the engagement of vulnerable residents with available funded schemes is seen as a considerable barrier to tackling fuel poverty, with experience showing that such households may not accept assistance when it is offered to them (DEFRA 2004). The difficulty in finding and reaching the fuel poor was especially apparent after the starting-up of schemes such as CERT (see chapter 6, table 6.1) where suppliers were required to find and assist a certain number of households in the ‘priority group’ (Department of Energy & Climate Change 2011b). This is a problematic area that local and community organisations are well positioned to help with. This has been explicitly acknowledged in ‘Fuel Poverty in England: the Government’s Plan for Action’ (DEFRA 2004) when looking back over existing and past energy efficiency schemes and their effectiveness to remove people from fuel poverty.

"The expertise and knowledge of such local networks and the trust which they engender in vulnerable householders makes them an invaluable resource in reaching the most needy clients" (pp20)

There is a notion here that local expertise and knowledge are intrinsic to the local networks included in the plan of action. Having a network of organisations rather than one organisation adds another complication for securing and maintaining trust as there are more organisations that are interacting and trying to build trust with householders.

Secondly, trust is seen as particularly important for reaching the most vulnerable residents because those residents can be hesitant to ensure that any scheme does not make their lives more difficult or expensive. In the field of locally-based energy projects, Walker et al (2010) argued that trusted relationships between people and organisations enable projects to develop in locally sensitive ways and foster wider societal trust of the technologies at hand. The explicit acknowledgement of trust is widely noted by a range of relevant organisations (e.g. Tod et al. 2012; Energy Saving Trust 2012; Focus 2012; Committee 2013) as a necessary component of any assistance for the fuel poor, especially those that are vulnerable. Trust has also been specifically identified as a major barrier into the uptake of fuel poverty alleviating measures (Dodds & Dobson 2008). Pilots of the Green Deal drew attention to the problem of trust in engaging householders in undertaking work to improve the energy efficiency of their home (Beardmore & Morris 2011).

Thirdly, 'finding' those struggling requires local knowledge. Within the general policy scene there is discussion of 'fuel poverty proofing' of homes, cementing the idea that all of the UK housing stock should have its energy efficiency rating raised. Whilst this is an important target for the long term, it has long been advocated that efforts should be concentrated on the most deeply in fuel poverty; a point the recent Hills fuel poverty review has stressed (Hills 2012). To know who are those in deepest fuel poverty requires far more information than is available nationally and often information that is not easily gathered in a quantitative form, as has been illustrated in the previous two chapters. For this reason, it is argued, local knowledge is required to target the most vulnerable portion of UK homes efficiently.

Local knowledge is unique in its ability to identify those not meeting the usual proxies such as passport benefits. Efficient use of resources appears as a reason for using local knowledge in fuel poverty schemes, though the knowledge held at local level is reason in itself for local tackling of the problem. One example of this is in the 2001 UK Fuel Poverty Strategy where 'locally relevant [energy efficiency] advice' is one of the methods employed to assist low-income households with energy bills.

6.2.2 The three local organisations

From what has been discussed so far, the efforts at a local level may seem relatively coordinated, planned and well organised, but here that impression should stop. When policy documents are talking of local partnerships, delivery agents, partners and practitioners it may appear that there are clear roles and boundaries, but there are not. Local fuel poverty organisations have appeared in a variety of forms and with different trajectories across England, meaning that this was at the time of the research many different local organisations tackling fuel poverty all with different characteristics and histories. As examples, the characteristics of the three organisations that form data for this thesis are detailed below. Chapter 3 explained the selection criteria and methodology behind researching these organisations but the local characteristics are detailed again below. A thorough specification of the three organisations is provided in order to give context for further discussion and to illustrate the diversity of organisations that exist to tackle fuel poverty in England. This is not intended to reinvent work that looks across the whole of England, instead for a complete review of area based approaches to tackling fuel poverty but within a national framework see Association for the Conservation of Energy et al. (2015).

As fuel poverty consists of an assemblage of different material, social and economic elements in particular settings (Harrison & Popke 2011), the 'solutions' are often wide and varied. To believe that solutions aimed to tackle fuel poverty will only tackle that concern is also shortsighted. Instead we can identify many benefits/objectives that can run in parallel to fuel poverty solutions, including contributing to addressing climate change and sustainability (see Boardman, 2010). This is then reflected in the work of local organisations as the three organisations whilst all working on fuel poverty were set up differently and have different overall objectives as shown in table 6.2.

All locally managed, operating and/or funded, in England, operating between 2011 and 2013, undertaking at-home visits to tackle fuel poverty			
	Organisation A	Organisation B	Organisation C
Remit	Fuel poverty solely	Energy efficiency advice and sustainable futures	Sustainability and climate change
Status	Charity	Charity with commercial connection	Community interest company
Established in	1999	1998	2007
Number of employees	5 FT, 1 PT	23 FT	Unknown (5?)
Area	Urban with some rural	Predominantly rural	Rural and urban

Number of home visits done	364 home visits in FYR 2011-12	Average of 300 a year	180 in FYR 2012-13
Help and support offered	-Energy advice -Emergency portable heaters -Benefit entitlement checks -Cavity wall and loft insulation -Referrals to other support organisations	-Energy advice -Oil bulk buying schemes -Discounted boiler servicing -Emergency financial support -Cavity wall and loft insulation -Installation of central heating systems -Referrals to other support organisations	-Energy advice -Cavity wall and loft insulation -Referrals to other support organisations

Table 6.2 Key characteristics of the three organisations in the research

This table illustrates that despite a specific criteria (shown in the top row) organisations vary in their key characteristics. Further details of the characteristics listed in Table 6.2 will be provided at various points throughout this chapter.

One aspect that is important but cannot be easily captured in the table is the funding streams of these organisations. Organisations A and C largely rely on short term and shifting funding from year to year whilst organisation B has secured funding streams that cover longer periods. For organisation A the year 2009-10 was the final year that the organisation could rely on charitable grants for the majority of its work, instead 2010 saw the start of bidding for funding attached to contracts and collaboration with other agencies to undertake projects. Its funding has then become very project specific. During the period of research, organisation A got the majority of its funding from local Primary Care Trusts and from local councils outsouring their energy efficiency advice. This means funding and projects are delimited, to a certain extent, by particular geographical boundaries. The finances of this organisations are managed in such a way that if there is a time when funding is lacking then there will be a sufficient amount in the accounts to allow at least three months of running expenses to keep the organisations main advice, information and referral services operating. Organisation B was set up differently being also part of a commercial business, it is therefore difficult to disentangle the finances of the organisations as a charity and commercial endeavor. The main inputs to the charitable side are local councils, the local NHS, DECC and National Lottery funds. Funding is predominantly for large scale projects – in terms of time periods and scope – on which they are collaborators. Organisation C is again not straightforward in that they are a

community interest company that do not just work on fuel poverty but also other activities in connection with sustainability in the community. Funding is a patchwork with income across the different objectives of the organisation. A significant portion of expenditure is spent on the organisation's home energy service, coming from a combination of different funders, including the council council, an energy supplier and the NHS. Funding for the energy-related activities is short term and unstable. All three organisations have a board of trustees to ensure the ethics and financial probity of the organisation.

6.3. Finding and assessing fuel poverty in the home

In order for these organisations to interact with households there are a number of procedures and processes that are followed so that help and support can be provided. These procedures are shaped both by the people that enact them as well as by their ultimate purpose. As will become apparent, tracing the decision to give certain support is not the task here, but instead I present a set of factors that may influence the forms of interaction that take place between resident and organisation.

The first section explores the processes that influence the 'finding' of the fuel poor. The organisations are made up of energy advisors who deliver home visits and engage with residents on a day to day basis. It is therefore to important understand what training and expertise these people have in order to carry out their roles. But support is not delivered in isolation. Fuel poverty organisations interact with other organisations in the community as they often work together in the 'finding' process.

In the second section I argue that the home visit and the use of forms to capture certain pieces of information are ways in which households are classified, categorized and determined to be both in need of help and 'helpable' in some way given the resources and specific priorities the organisation is working with. This will take us on to the final analysis which considers what help is provided after and as part of this determination.

6.3.1. 'Finding' the fuel poor

Within each organisation there are energy advisors that deliver home visits and are the point of contact for residents. From a variety of employment backgrounds, advisors bring their own set of skills with them. Many advisors had experience in social services roles and believed that this enabled them to feel equipped to deal with potentially difficult social situations encountered in this line of work (as described at the beginning of this chapter). In one organisation, volunteers were used alongside a

few experienced advisors. These volunteers were predominantly university and college students from the local area. Training was provided for how to conduct a home visit and how to spot potential problems that may be causing a household struggling to keep warm affordably. The national English fuel poverty charity, National Energy Action, provides appropriate training specifically for those working in the home in these roles. Whilst there is no official obligation, all three organisations sent advisors on this training, at their own expense. However where volunteers are a significant proportion of the energy advisors team, internal training is provided by an experienced advisor. This includes basic instruction about going into the home as well as detailed locally-specific building information and ways in which to informally/casually assess the household's situation. This training is intended to provide a basis on which to understand what help might be needed and what support they may receive. It is not training on how to assess whether a household is 'statistically' fuel poor or not, or to carry out an in-depth technical survey of the building or the financial situation (at this stage). The advisors' main 'equipment' in a sense is their knowledge of how to spot the areas where the organisations may be able to offer some assistance. They are expected to have a heightened awareness of how people may be experiencing a struggle to adequately afford access to energy services. In the first instance, the judgement is usually made using this knowledge based on procedures advised and inculcated through training and their immediate observations when visiting the home.

Training is where the method or approach to the home visit is instilled in the advisor. It provides the basis for the procedures that go into finding and assessing households. The presence of training provided by NEA in theory provides a uniform knowledge base through which energy advisors across the country draw expertise from. However it is not as straightforward as learning a step by step procedure for a binary end result ('need help' or 'don't need help'). Furthermore it is apparent that the advisor can be flexible and deliver a home visit in their own way, despite the experience of at least some training on the procedures that should be used to explore a household's situation.

Although the processes followed and knowledge held by the advisors are important, fuel poverty organisations do not find and assess households in isolation and alone. They are helped by other organisations to both find households in need – in terms of a variety of potential issues – and understand what other, beyond those related to energy, everyday issues need accounting for when offering people 'solutions'.

As already emphasised fuel poverty organisations are part of networks that involve other organisations providing services in the local area. Other organisations can provide complimentary services such as financial help and social care. But all of them have a front line role where they interact with residents and try to provide some form of advice, support or improvement to their lives and/or homes.

There is a tangible relationship between a fuel poverty organisation and other organisations in the community through their funding. Funding often moves between organisations in a local network or between the local government and a variety of other organisations. For example one project that aims to keep older and vulnerable people warm and safe in their homes had the funding from the local fire and rescue service, local council and the local NHS. There is a great variety in the exact arrangements of projects, funding and formal relationships. A contract between two organisations may be in operation where the fuel poverty organisation provides a specific service to a specifically defined and bounded group of residents (such as those in social housing or local authority accommodation). There may be a formal network of organisations that then together draw on funding, or jointly provide a certain service.

These types of relationships are important for understanding why an organisation may come to visit a resident and 'find' them as potentially in need of assistance, when we think what is required for residents to be offered help.

There are three ways that this initial contact comes about.

- The resident telephones the organisation
- The organisation meets the residents in the local community (at an event for example in a shopping centre or local library)
- Another organisation refers the resident to the organisation

In the first option, the resident themselves has decided that they may warrant or need help and so approach an organisation, choosing the information that they want and consider to be important. In the second two options, someone else from the organisation or from a referral organisation judges their situation and so interacts with the resident and, together or independently, decide which information is relevant. In all of these circumstances, information is structured by what someone believes needs changing and/or where there is help available to change the situation.

Previous narratives in Chapter 5 could suggest that residents need to ask for help, that they need to identify that they are entitled to help, or that they need to be identified by someone else as 'in need', for a detailed energy-related reason. However this is not necessarily the case. Instead any classification of whether or not

households are notionally ‘fuel poor’ or at risk of being so may happen at a higher level, distanced from any immediate engagement with the residents.

At one organisation, a social housing provider (SHP) employed one of the organisations’ energy advisors for part of a week. This meant they would spend time doing home visits with the residents of the SHP homes. Fuel poverty had been identified as a problem for their residents through front line experience and explanations of rent arrears. Therefore these residents had automatic access to home visit without any further action. The SHP made a decision that their residents were all eligible for support and help from the organisation simply because they live in the provider’s accommodation. This decision was based, interestingly, on the fact that they had estimated that 60% of their residents were in fuel poverty (by estimations of income and energy efficiency of their properties) furthermore this SHP has identified that energy efficiency and energy bills are a problem in their 9000 properties; undertaking efforts to improve access to affordable energy in off gas properties and additional insulation in their hard to treat properties such as Airey houses.

6.3.2. Assessing: the home visit

So far I have argued that the procedural way of knowing fuel poverty is not simply an operationalization of a fuel poverty calculation and delivery of certain solutions related to this. Instead I have demonstrated that the local determinations of those enacting and designing working processes and procedures affects who may be ‘found’ as fuel poor and subsequently be eligible for help. This section turns to how, once contacted and engaged with, organisations assess households and then offer certain solutions to the problems they identify, drawing on the period spent observing the three organisations’ daily activities from home visits to meetings to general office work. Chapter 5 illustrated some of the everyday lives that these organisations are encountering and working with. The home visit is the starting point where the organisation are introduced to the experiential way of knowing; the interaction between advisor and resident, between what is needed and what is on offer, what is being said and what is being done.

During a home visit we see a conversation between two strangers, one with something to offer, the advisor, and one apparently in need of something, the resident (although they may not recognise this, as discussed in the last chapter). And so ensues a negotiation, implicit or explicit, between or towards what can actually happen post-visit. But processes are bubbling away underneath. Questions are being asked and answered. The advisor, their experience and training, and the way that

they have come to be in the home foreground where the conversation starts and what questions are initially asked. Initial contact is the most significant juncture at which there is an implicit questioning and answering between advisor or organisation and the resident, because residents are aware of the subject of help that is offered but there is an opportunity for them to be open about what exactly they are struggling with and how this affects their everyday life. But beyond this, it can be that choices are open as to what support is possible. From here the home visit, and the devices/procedures within it, come into play to decide what 'solutions' are open to the resident.

It is through the home visit that the residents are assessed for further help in all three organisations. A home visit form is the way in which advisors try to record, classify and categorise the resident and their situation so that it can be fed back to the organisation and be part of a) providing support and b) evaluating their own work (including to report to funders and make the case for more funding).

Initial contact between the resident and the organisation is when a blank form of the organisation's own design makes its first appearance. The forms of the three case study organisations are shown in the next 8 pages.

Figure 6.1, 6.2a, 6.2b, 6.3a, 6.3b, 6.3c, 6.3d have been removed due to Copyright restrictions

Figure 6.1 Home visit form for organisation A (1/1)

Figure 6.2a Home visit form for organisation B (1/2)

Figure 6.2b Home visit form for organisation B (2/2)

Figure 6.3a Home visit form for organisation C (1/4)

Figure 6.3b Home visit form for organisation C (2/4)

Figure 6.3c Home visit form for organisation C (3/4)

Figure 6.3d Home visit form for organisation C (4/4)

The information that is entered into the form during the initial contact varies greatly between organisations and different cases from just the householder's name and contact details, to a fuller description of what the instigator believe is the issue at hand. Only one organisation (B) has a set differentiation for why the home visit was initially sought and the situation that the advisors see. The other two use the general parts of the form to fill in information before the visit.

An advisor and the form then travel into the resident's home, before which they have familiarized themselves with the information that is available. On entering the home, the advisors observe the resident, their home and life; potentially gaining knowledge that they question the resident on further. Information is exchanged and, as it comes up, the home visit form is filled in. Predominantly it is a conversation

rather than an interview. The form provides a framework on which to sort, order and classify the knowledge that is gathered, with some sections being open ended and others being closed, multiple-choice questions.

The conversation during the home visit typically guides itself and the form is filled in when appropriate knowledge arises. It does not directly and prescriptively decide the format of the home visit and the interaction with the resident. Nonetheless there is certain information that is deemed essential to take down.

The home visit forms whilst two of the organisations' forms have a significant amount of multiple choice sections there is still some open space where the advisor is expected to write about the resident's situation. This suggests a certain amount of trust in the advisor to know what they are looking for. The multiple choice answers that are a significant part of organisation B and C are also information that is entered into an extensive database through which the organisations can later search. This appears to be predominantly for evaluative purposes though the initial taking of this information could be to provide evidence for support and secondary for the entering in to the database.

During the home visit, it is an iterative process between a conversation about the residents situation and the advisor either offering relevant advice as problems arise or gathering further information so that tangible support can be given at a later date. What this support can consist of will be explained in section 6.4, but it is important here to note that during the home visit, an advisor will begin to gather any information that they know is relevant to establish ‘proof’ (at a later date) that the support is to be legitimately provided. Outside forces at this point begin to press down on how the form is used, as the person’s situation needs legitimization in relation to the rules and boundaries of the further resource and funding commitments available to each of the organisations at the time the visit if conducted. The home visit form, and/or an additional form, becomes in effect a gateway or passport to further support and a record of the home visit for the work of organisation. From this point onwards the information gathered is driven not by the resident and the advisor but by what the scheme or support requires in terms of proving need and eligibility.

An example is the state benefits that the resident claims because these are used as tests for income levels and/or additional vulnerabilities such as disabilities. There is little evidence to suggest that there are other explicit requirements that form rules for further help post-home visit, beyond state benefits. Exceptions to this are where help is given by another organisation, such as an energy supplier trust, and often further and very detailed evidence is required for the income of the household, such as household debt, loans and other utility bills.

This mimics the use of benefits as proxies in national schemes (as discussed in Chapter 4). The fitting of the experience of a household's everyday life onto the form is a procedure undertaken by the advisor, but involving the resident as they decide what is to be revealed (or not revealed). As in the use of a census, individuals becomes subjects as they are subjectified through the categories of the form and answers given into a representation of themselves (Ruppert 2012). The resident has the power to decide what to tell the advisor, at the same time the advisor has the skills, structured by training and experience, to observe and act on the resident's situation to decide what support is or is not offered. Whether physical improvements are to be provided, or informational advice is given, there is a clear flow of information between the resident and the organisation.

At times this classificatory procedure puts pressure to change and mould the way that the experiential is understood by producing tangible results that other bureaucratic systems can also make sense of and incorporate. One example is a scheme may be aimed at those with health conditions that may make them at risk to low temperatures, but it is not just the presence of these health conditions that is required but also the claiming of certain disability benefit that 'prove' that this the case. It is a way of translating someone's health or disability into a language that these schemes can understand and test, rather than in the experiential, fuzzy and at times disputable way that advisors and the residents' themselves may understand it. The goal of such schemes and their eligibility criteria is to do exactly what it is doing: cut up the complex world into recognizable units (Bowker & Star 1999). This can be seen on organisation B's home visit form where there is space for a detailed record of the benefits being claimed (Figure 6.2b).

Nonetheless, health is a good example where the home visit form often leaves it open ended for the advisors interpretation. Two of three forms (B and C) have separate health sections, both being open with no multiple choices. The third form is more open overall and does not have a separate section for health concerns. This could clearly be a juncture where an aspect is simplified at just the time when detail could be important for comprehending why a household warrants support. This sort of simplification has two problems at its core. Information that is not collected at the time might be deemed to be important at a later date, blocking off future progress, and designers at different stages of the use of information may have different needs (Bowker & Star 1999).

The form then is a site of classification where the politics and tension between the procedural and the experiential way of knowing are played out. As can be seen in the form there is no evidence of figures being recorded that would be essential for a

calculation of whether a household is fuel poor or not as according to the national statistical definition. The LIHC definition has no visible place here. But is this the case throughout the procedural way of knowing? The next section will illustrate how the national statistical way of knowing fuel poverty can be seen to have some influence or role to play in how the organisations address fuel poverty.

6.4. Addressing fuel poverty

Addressing fuel poverty must happen after the assessing is done but in reality, it may be happening simultaneously and iteratively. It is best to think of ‘addressing’ or the ‘solutions’ that the organisations provides as divided into two types, though at times they merge and get tangled up with each other. There is addressing a) through advice and b) through devices (see further on the meaning of this term below). Advice is difficult to isolate to say exactly where the procedures that lead to certain choices happen, whereas devices require explicit processes and have tangible, bounded outcomes. Simply, the criteria for giving advice are implicit whilst the criteria for giving tangible physical interventions tend to be explicit. Some may argue that if the organisation is in a person's home, it warrants them to receive advice alone, but there is more than this, as the advisor makes decisions - implicit or otherwise - that determine what advice is given. It should already be apparent that these organisations have a range of possible advice that they could give both on energy and other domestic matters. Their relationships with other organisations in the community also extend their ability to be the source - even if outsourced - of a wide range of advice.

In the following discussion I consider how once a household has been ‘found’ and assessed, addressing the problem is the next stage for the procedures of the organisation on a home visit. Much of the literature on fuel poverty focuses on the output of different improvement schemes but little is made of what is actually decided upon and how there are different ways through which fuel poverty can be understood or the problem(s) that the resident appears to have. Through laying out what 'solutions' (advices and devices) the organisation offers, I argue that there are a number of characteristics that bound or limit these possibilities for different people.

The term ‘device’ in this section is best thought of as the tangible help that does not have to actually be a physical device. For example, it could refer to a monetary payment that enables the resident to pay off a debt on their energy account or as a device to pay for increased energy use for increased warmth.

Not only is there a range of 'solutions' for an organisation to choose from, the three organisations also had a range of *different* solutions available to deploy within

their processes and in their area. Those offered by the organisations I worked with are shown below. Table 6.3 sorts them by whether they are an advice or a device. All offer a similar range of advice and expertise that can be delivered during the home visit. One organisation of the three has access to a scheme to install central heating systems where there is none or the current one is beyond repair. Organisation C did not have direct access to funding for such 'hard' measures, but did have knowledge to apply to external schemes for such work for residents, such as Green Deal and Energy Company Obligations.

Advice	**Device**
Referral to other support organisation	New central heating system
Switching energy company and/or tariff	Paying off large energy bills and/or energy debt
Negotiation with energy supplier over problem	Emergency credit on energy account
Benefit/support entitlement check	Loaning oil-filled electric radiators
	AGE UK Winter wellbeing boxes
	Insulation

Table 6.3 Advices and devices offered by the three organisations

Advice comes in different forms and on different topics. As is clear from the home visit, an open approach is taken when entering the home so that the most important topics may be made visible. This means that advisors are expected to give a broad range of advice. Furthermore, the energy-related topics that residents may require support for can be similarly wide-ranging. There is the technology involved in accessing energy (such as meters, pipes, radiators), the invisible systems (such as energy payment, energy monitoring) and physical/practical considerations (such as position of the meter, personal thermal comfort, use of heating controls). For this reason home visits vary greatly in the type and level of information that may be required to 'solve' the resident's 'problem'.

For some households it is advice that may be generally relevant to energy bills and coping. Such as information on switching suppliers and looking at the best tariffs or to enter meter readings each month to maintain accurate billing amounts. A large amount of home visits focus on this type of advice. For others it is specific advice that is in relation to a problem that they have identified and are struggling with. For example, where there has been a change from electric storage heaters to gas central heating a change in the physical meter is also required from a two rate meter to a

single rate meter. Mistakes can be made when recording the two different rate amounts, which have a significant price difference. This was seen on a number of home visits but it takes the experience of the advisor to spot a mistake in the billing between the two-meter types.

In different scenarios different ‘problems’ are being ‘solved’ by the organisation but they are all related to enabling the resident to access adequate energy services as much as is possible. Despite one problem being identified and potentially addressed, the advisors that I observed took a whole- house/person approach to every resident that they met. In so doing they acknowledge the multiplicity and complexity of what can cause people to be struggling to afford adequate energy services, especially warmth.

However some advice can be excluded because there is not a clear tick list of questions or topics to be asked by the advisor and advisors are not required to deliver the exact same advice to every household but instead to offer more personalised support. The home visit forms of organisations B and C contain specific sections for marking down what advice was given. The solutions that the organisations can offer are not laid out for the resident to choose from. Although organisations B and C include options for the energy-related problem as shown in Figure 6.4.

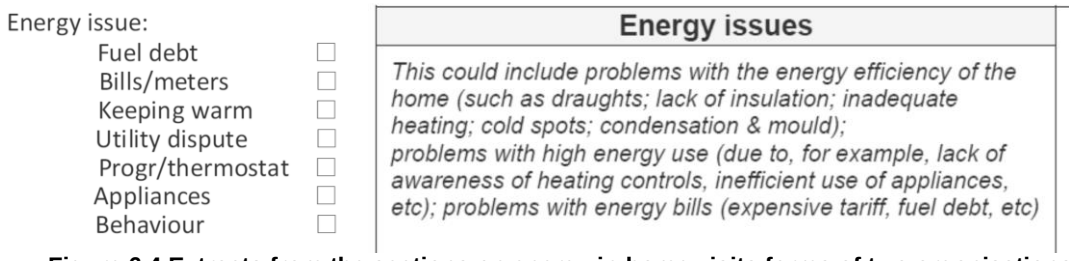


Figure 6.4 Extracts from the sections on energy in home visits forms of two organisations

Thinking back to my account of the experiential way of knowing in chapter 5 raises questions about what may be being missed by advisors. Whilst the experience of advisors mean that common coping strategies are likely to be spotted, the idea that residents are content or not complaining about their situation can raise questions as to how effective support from organisations is or potentially could be. Knowing that some residents, particularly those who are older, can be ‘implicit accomplices’ to their situation, can feel embarrassed discussing how they keep warm (e.g. Day & Hitchings 2009; Hards 2013) and want to avoid debt of any kind and exhibit pride or preference to cope with their situation means in combination that they may not articulate any sense of difficulty to the advisor, or self-identify opportunities for improvement of their situation. If advisors rely on residents to evaluate their situation

it may mean that people that could be helped are being missed because either they are not seen at all or because they are seen but the 'real' problem is not made visible in a way that the organisation can access. The site where procedures and processes occur in this sense is not visible, it is hidden from view meaning the tensions and politics behind it are similarly hidden.

Whilst a broadly similar picture appears for each of the organisations when you focus on advice, there is a different picture with devices. Devices are locally contingent. In a rural area where there is a lack of central heating there is a scheme to install such systems. In an area where electric storage heaters are found in a high number of LA houses, they are being replaced with gas. Other forms of help include financial sources, national and local - from local funds and from energy supplier trust funds. Crucially with all of these there are clear eligibility criteria that need to be satisfied, linking back to points made earlier about how information ordered into particular categories is important to establish the legitimacy of device commitments. In a way you could say this was a ‘postcode lottery’ as to what is available and what is not. Although this phrase suggests that the choice has no real relation to the characteristics of the area, which is not quite true.

One of the values on having a person visit a resident in their home is that support can be tailored to what they see. It is by using their experience of the area and of its people that they may be able to mine relevant information from the residents that may make ‘solutions’ explicit or play a role in safe guarding them from future problems. For example, as in a case I observed, for those with mobility problems, having a prepayment meter, where a ‘key’ has to be placed in the meter to top up the account, low to the ground, outside or in other difficult to access place can result in the resident not being able to find out how much debt is on the meter and subsequently not being able to manage the pay back of their debt against their current usage. This can mean their access to energy is limited - a cold home or a lack of electricity - and can mean that they do not know how to negotiate with the energy supplier a rate of debt recovery that they can afford. Whilst the details of who would pay for a meter to be moved or how much it would be varies depending on the supplier and the circumstances, this situation could be altered and improved in a way that results in the resident being able to a) heat their home adequately b) be informed and being able to take control of their relationship with the supplier and c) to pay back the debt at an achievable rate. However a key meter is often seen as a non-negotiable addition and the resident can often feel that they do not have any choice about whether it gets put in or where it is (OFGEM 2008).

From looking at both advice and devices there is a noticeable focus on warmth rather than all energy services. This was both observable in conversations during home visits, as led by residents, and by the solutions on offer from all the organisations. This was part of a predominantly implicit acknowledgement that warmth is the most important and expensive service that energy bills went towards. Also to address people's access to affordable warmth was to address their access to all energy services. Either through a reduction in the amount spent on heating and thus leaving additional funds for energy on other services or through physical improvement to access to energy without discriminating between particular energy services.

To a certain extent the organisations can only offer to the residents what they have available. There is a risk that problems which they do not have solutions for are not 'seen' by the organisation. However the majority of schemes that organisations deliver have been designed with them therefore taking into account their experience with residents. One such example is where an organisation provided home visits to residents who had been moved from ESH to GCH. This was because of experience with people not understanding the new controls and the practicalities needed for accurate billing from one system to another.

6.5 Evaluating progress on fuel poverty

To evaluate a scheme based on the government definition and the statistics of those that are removed from fuel poverty or the number of the fuel poor that receive assistance through the scheme may seem logical. But such evaluations were not carried out by the three organisations. This could be to do with the complex nature of the definition, as already explained in Chapter 4. It would be time consuming and difficult to gather information to establish that everyone that received assistance was one of the 'officially defined' fuel poor. With the information that is collected through the home visit and the form, estimates of the number of households most at risk of fuel poverty could be made but this would be based on estimates not the actual individuals. The practical difficulties of using the statistical definition of fuel poverty in the process of evaluation highlight the alternative processes of category-making and classification involved in the operationalisation of fuel poverty assistance by local organisations. The effectiveness of a scheme could be tested by presuming that the distribution of households receiving assistance should broadly match the distribution of households in fuel poverty and that households classified as fuel poor should be eligible for assistance. At one level the category is created and rationalised at a statistical level but at the level of where action interacts with individuals, the category

becomes irrelevant. In the meeting of the social world with the classification at hand, potential targeting is lost in translation to action due to practical and conceptual limitations.

So how do organisations measure their achievements and performance?

All three organisations stated how many people they had seen during all activities and how many people they had given advice in their home to but not how many fuel poor households were reached of the whole group or how many people they removed from fuel poverty. This prioritises the general experience of the resident and improving their situation, whether they meet a criterion that they do not identify with or not. Secondly, this recognises the fact that the national statistical fuel poverty definition cannot be meaningfully grounded in real assisted households despite that it would be difficult for anyone to argue that this work is not making some progress towards the reduction of fuel poverty as understood under the statistical definition.

Given the inconsistent and unstable patterns of funding resulting from the changing policy landscape of recent years, the role of the fuel poverty organisations I observed altered. Different funding came with different restrictions such as where it must be spent: the geographical area, the household type and the measures. This is especially clear with costly ‘hard’ measures or devices as the priorities of funding are reviewed, changed and altered. The move from Warm Front to Green Deal and ECO as the source of funding for energy efficiency improvements has changed the way that the organisation is an intermediary. As was mentioned earlier intermediaries are defined by the in-between work that they do, making interlinking connections. As funding changes it is not the relationship between the resident and the organisation that changes but the relationships between the fuel poverty organisation and other, supporting, service and sometimes energy-related organisations. For example to deliver Green Deal or ECO requires other organisations that are accredited to take part in the scheme to deliver different stages of the processes. Also funding and its requirements can change the integral characteristics of the organisations as additional training and knowledge may be required to implement the eligibility criteria and/or different stages of the relationship between the organisation and residents and other organisations.

Annual reports of all three organisations focus on what tangible quantitative information they do have access to. Figure 6.5 shows one example where the organisation has broken their progress down into what the issue was, what the task undertaken was and what the event they met the resident at was.

Organisation B states how many central heating system they installed and how this breaks down into different fuel types. A further common way to state progress is by how many households were seen and how much money the organisation's advice would save the residents if it was undertaken. As well as these quantitative results, organisations followed this up with qualitative testimonies from residents that received support.

Issue	10-11	09-10
Accommodation	920	1,061
Bills / debt	397	87
Benefits	40	55
Disability – mental	14	20
Disability – physical	49	86
Energy advice	2,027	2,783
Fuel company	645	505
Grant schemes	715	996
Health	113	170
Other	7	19
Renewables	74	45

Task	10-11	09-10
Gave advice	731	953
Gave information	1,039	1,955
Received information	1	2
Referred to other agency	804	838
Arranged emergency visit	55	85
Mediation / negotiation	27	50
Advocacy	11	11
Home advice visit	675	1,113

Event	10-11	09-10
Briefing and training	16	9
Carers	1	1
Display (staffed)	72	27
Hospital	1	4
Lunch Club / Day Centre	12	18
Neighbourhood Forum	2	0
Senior Citizens	2	11
Sheltered Housing	1	2
Other	1	13

By looking at the variety of ways in which organisations evaluate themselves makes it clear that the fuel poverty statistics are *not* how schemes at this scale are evaluated. Instead the procedural work of the organisations is measured in terms of what issues they were faced with and what solutions were implemented, as well as the levels of resulting satisfaction of the residents.

Figure 6.5 Extract from evaluation of Organisation A's annual report 2011

6.6. Conclusions

By analysing the work of local organisations we have seen how the procedural way of knowing fuel poverty is positioned inbetween the experiential and the statistical ways of knowing. Procedures and processes enable organisations to apply their understanding of a phenomenon the experiences of people in a way that is clearly distinct from the statistical relationships, numbers and figures that emerge from the national definition of what fuel poverty is taken to constitute. The organisations are though acting on the extent and severity of the problem that this national definition identifies, and working with the nationally determined resource flows and strategies that the statistically produced fuel poverty indicators have a key role in justifying.

Discussing the different elements of directing action against fuel poverty the operations of local organisations tackling fuel poverty was explained. It was argued that their local nature, their instability and their variety over a national scale shape the differentiated characteristics of the processes and procedures through which they find, assess and address fuel poverty. The forms of knowledge and processes involved in this way of knowing are based around the ongoing and situated work that the local organisations do to improve the situations of residents in their areas.

It was also shown that the training and skills of the advisor shape which ones are used and how they are enacted. Other organisations in the community shape the way that residents are 'found' and who is therefore included and excluded. Thus those people who refuse all types of help - be it housing, social care or otherwise - are more likely to be excluded and subsequently may not have access to support. Despite this, there are many examples of formal links between fuel poverty organisations and others in the community, meaning that fuel poverty can through these means be found in a variety of homes and residents with different problems.

My account of the use of the home visit shows how the procedural way of knowing necessarily has to make fuel poverty into something that can be reduced to named categories on a predesigned form. The combination of qualitative and qualitative information varies between the organisations, as does the way the procedures between residents and advisors can be enacted, varying across different organisations. Interpreting the experiential into a form and its procedures of categorization also mirrors to some degree the use of proxies for national schemes. As the categorisation is not a device that enacts itself, the form is a site of classification where the politics and tension between the procedural and experiential way of knowing are played out.

Finally, I argued that addressing fuel poverty through ‘advices and devices’ raises questions about what 'solutions' are offered and what aspects of a person's situation may or may not be made visible through the procedures that are followed. In these terms the specific understanding of fuel poverty that a given procedural way of knowing produces, is shaped by the solutions on offer (in a particular space and time) and the specific categorisations that need to be part of their implementation. It is not therefore a static understanding that is generated but one that is subject to the ongoing local politics of priority setting, funding commitments and organisation collaboration. It is important to recognise therefore that I have provided an analysis of the work of organisations at a particular point in time. With the changing dynamic of fuel poverty policy, and wider shifts in public funding and priorities, these organisations and their procedures will be inevitably themselves dynamic, altered by

the expectations and responsibility placed upon them through funding and policy. This dynamic explains why the ‘best’ ways to address fuel poverty and which particular groups are the first priority has changed over time.

Overall this analysis reinforces how organisations are acting as intermediaries in the action against fuel poverty. They have specific but dynamic relations within their geographical area and within the work they are required to do in order to sustain their funding and ultimately their existence. They are not just local actors though but ultimately and in combination, they have a strategic role to deliver actions that are essential for the running of the efforts to tackle fuel poverty at a national level.

Chapter 7: Conclusions

7.1 Restating the research questions

The starting point of my investigation was to recognize that fuel poverty can be understood and located in different ways. I researched three different ways of knowing the phenomenon, before moving on to consider the implications for policy and action that emerge from my analysis. My investigation was undertaken through a qualitative mixed methods research design, focused on three localities in England, as well as an analysis of how national scale statistics on fuel poverty are produced and intervention strategies are targeted through proxy measures.

The specific questions this investigation set out to answer were:

1. How can different ways of knowing fuel poverty (statistical, procedural and experiential) be characterised, in terms of the forms of knowledge they draw on and the processes involved in their production.
2. How is fuel poverty understood and identified by each way of knowing?
3. How do these different ways of knowing interrelate and interact with each other?
4. What implications does the co-existence of these different ways of knowing fuel poverty have for our understanding of the challenges and opportunities for tackling the problem?

In concluding the thesis each of these questions will now be addressed in turn.

7.2. Characterising the three ways of knowing fuel poverty

The first research question will be considered by characterising each of the three ways of knowing fuel poverty. It will then become clear how they can be compared and contrasted. Table 7.1 shows the key characteristics of the three different ways of knowing whilst the following text expands on these ideas.

	Characteristics, forms of knowledge and processes involved in production	Understanding and identification of fuel poverty as…
Statistical way of knowing	• Government-produced • Quantified • Modelled • Abstract from individual householders • Relative standard • For understanding the severity and progress of the problem	The total numbers, severity and geographical location of householders categorised as fuel poor A standard based around the achievement of adequate energy services according to the quantitative and modelling of energy prices, household income and energy consumption.
Experiential way of knowing	• Situated experience • Everyday practices • Householders' own perceptions • Distanced from expert knowledge • Not a universal, uniform standard • Entrenched in individual experience	A perception of the affordability to keep warm based on their own situation A balance between warmth and cost An inability to manage or cope
Procedural way of knowing	• Processes and procedures of the local organisations • Intermediates and interacts with and inbetween experiential and statistical ways of knowing • Certain degree of categorisation but not binary • Changeable, diverse and flexible • Locally determined • For the purposes of action	Located where there is a struggle or need, whether reported by the householder or evidenced through other deficiencies A struggle that can be alleviated or solved through 'hard'/physical and 'soft' measures

Table 7.1 Summary of how different ways of knowing are characterised and how they understand and identify fuel poverty

7.2.1 The statistical way of knowing

This thesis started out with an assertion that the government- produced annual statistics on fuel poverty and the definitions and the processes involved in creating these statistics were a form of governmental classification and category creation. In the subsequent analysis in Chapter 4, I argued that the statistical way of knowing is based on the interrelation of quantification, simplification of complex data and modelling of energy requirements, adequate energy services and the characteristics of the English housing stock and households. Decisions are made within these category making processes in order to able to define a precise boundary between 'fuel poor' and 'not fuel poor' which in turn enables the enumeration, in statistical terms, of the number of households deemed to fall within the category as it has been defined. Such statistical characteristics are what allows this way of knowing to put forward a standard of what expert knowledge believes people *should* achieve in terms of affordability and access to adequate energy services rather than a measure of the actual condition of housing, energy consumption and household income in English households. With this expert knowledge feeding into modelling of the relationship between the three determinants, fuel poverty is 'known' through a complex set of modelling calculations, reliant on a selection of data sources and types. It is a constructed representation of part of the population, abstracted from any 'natural' or readily discernible category of either people or housing. The forms of knowledge and the processes involved in constructing the statistical way of knowing leads to a very specific understanding of fuel poverty on a national scale.

The nature and processes of this quantitative form of knowledge production restricts and order its temporality. There is a limited dynamism, working not on a day-to-day basis but on annual and larger cycles. Nonetheless, the sets of inputs that feed into the modelling (and thus the statistics) are also prone to being pushed and pulled by different perspectives and forms of expertise as part of an on-going struggle to produce a somehow always more 'accurate' measure of fuel poverty.

7.2.2 The experiential way of knowing

The experiential way of knowing, examined in Chapter 5, does not at all engage in the problem labelled as 'fuel poverty' through the same terms as the statistical way of knowing. Drawing on the accounts of older householders in England, this way of knowing is based on situated experience and the everyday

practices that householders take to balance their needs to keep warm and provide other energy services in relation to the financial, physical and social costs that they are able to manage and cope with. This way of knowing is strongly characterised by the residents' *own* perception of their situation drawing on what they know from experience. The forms of knowledge are largely distanced from expert and technical knowledge such as of energy consumption, energy efficiency or healthy indoor temperatures. There is not a narrative of a universally understood standard or category that the situated experience is being measured against or positioned in relation to. Instead what is 'acceptable' is shaped by how well they are able to manage and adapt to their situation, rather than being determined by a particular or consistent threshold or standard.

7.2.3 The procedural way of knowing

Having argued that the statistical and experiential ways of knowing are characterised by fundamentally different forms of knowledge and processes of knowledge production, the procedural way of knowing is distinct again but in direct interaction with both the statistical and experiential understandings of fuel poverty. The procedural sits in-between the statistical and experiential ways of knowing, enrolling knowledge drawn from the everyday lives of householders, and feeding into and framed by national statistical understandings of fuel poverty. As the name suggests, the processes and procedures that local organisations use are central to how this way of knowing is characterised. It is made and enacted through the organisations' purpose; the need to take action on the ground against the problem labelled as 'fuel poverty'. There is a certain degree of categorisation through home visits and accompanying form filling in order to fit households within defined sets of characteristics related to how help can be given, but the advisors work with the experiential accounts put forward by householders first and foremost in order to complete these forms and respond to their needs. The shifting context of energy and housing policy and the dynamic local profile of funding and partnership building, means that this way of knowing is subject to change and flexibility.

Fuel poverty is known here as a problem that can be found and assessed through locally determined categorisations, but the understanding of fuel poverty in this way of knowing does not embody a clear and consistent sense of a preconceived standard that a resident should achieve, without regard to their own opinion of the situation.

Just as this way of knowing is inbetween the previous two ways, it is also inbetween in the sense of its role within an organisation. The analysis discussed in

Chapter 6 stressed the role of the organisations as intermediaries, characterised by their strategic significance in locally delivered action against fuel poverty. However this intermediary status comes with a tension, between how fuel poverty is characterised as a problem that can be tackled, and something that can be evaluated in the same terms. I argue that this is where the procedural way of knowing does not understand fuel poverty as something that can be clearly defined and classified. Instead, categorisation is part of the process of implementation.

7.3 The understandings brought forward by the ways of knowing

As already laid out in this thesis, any one way of knowing cannot be championed as the 'one true fuel poverty'. Each is particular and produced, and up for negotiation. As Bowker and Star (Bowker & Star 1999) argue, if any classification becomes regarded as 'natural' there is a danger that no one is able to disregard or escape its consequences. In addressing the second research question I will again move through each way of knowing in turn.

7.3.1 The statistical way of knowing

The statistical way of knowing understands fuel poverty to be a standard based around the achievement of adequate energy services as seen through quantification and modelling of energy prices, household income and energy consumption including a certain range of indoor temperatures as well as an ability to categorise different households depending on some perceived needs and other general assumptions about behaviour. This standard that the national definition puts forward is widely used but not unquestioned.

Through a modelled calculation of hypothetical energy consumption, household income and energy prices, statistics are created for the number, severity and geographical location of households in fuel poverty in England.

Notable attention deserves to go to how energy consumption is calculated as it requires a complex and potentially diverse set of decisions to produce a model of English households. Adequate energy services are understood through a modelled calculation of total energy consumption. Space heating is the largest single contribution and based around long-pervasive medical knowledge that 18^0C to 24^0C is the temperature range needed to avoid harm to human health (Hills 2011). Vulnerability is included as those groups deemed 'vulnerable' (and therefore a priority for help) are modelled as having a longer standard heating period and increased indoor temperatures.

7.3.2 The experiential way of knowing

The understanding of fuel poverty put forward by the experiential way of knowing is rooted in the everyday diversity of what is occurring in people's homes. The empirical work discussed in Chapter 5 focused specifically on the experiences of older people. Rather than generating a measure of what overall energy consumption a household should use, the experiential understanding of fuel poverty focused on warmth as the most important service that energy provides in the home, especially then in relation to its consequences for human health and well-being. Discussions of achieving warmth were constantly in a context of concerns about the affordability of energy and people coordinating the different elements involved in trying to keep warm in their everyday lives. Achieving a balance between warmth and cost involves four strategies reported by participants of this research –responsively adjusting the length of time for which heating is kept on, and the parts of the home that are heated; using secondary heating sources; wearing additional clothing and layers that help to keep bodies warm even if room temperatures are low; and adjusting daily routines. These adaptive measures are not standardized or automatic, but fitted in, with and around the circumstances of people's lives.

Residents acknowledged the potential role for ageing to shape their ability to afford adequate energy services. Informed by Sen's capability approach, I argued that health modifies a person's secondary capabilities that form a precursor to basic capabilities of what is required to keep warm and that health can restrict people's ability to achieve the same outcomes. Using the capability approach I argued that the experiential way of knowing understands fuel poverty through people's self-perception of their own situation and how it might be dealt with through strategies to adapt and change preferences. The problem of adaptive preferences then looms large in considering how harm and diminished well-being may not be recognised as such by those that are experiencing its effects.

7.3.3 The procedural way of knowing

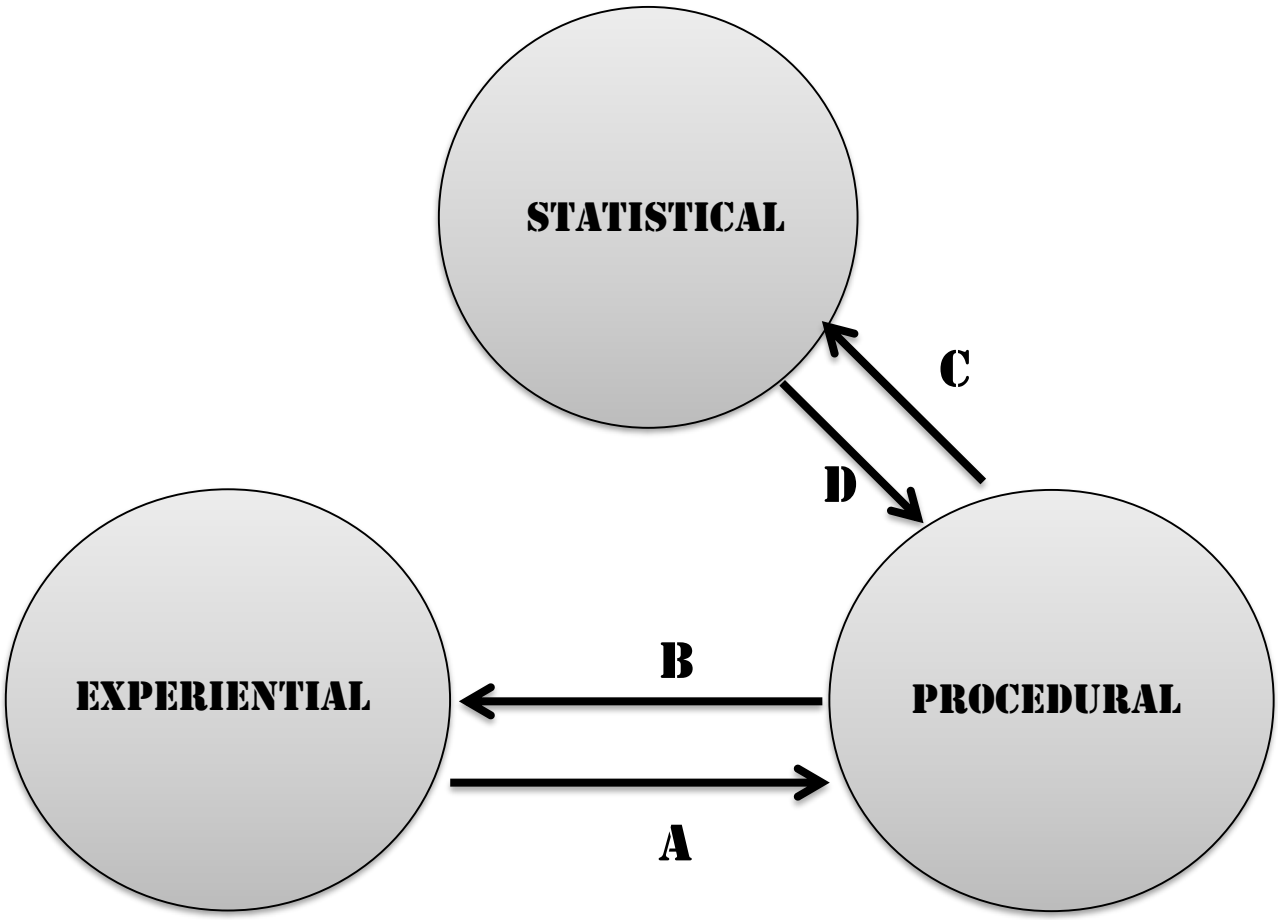
Policy on a variety of topics provides a rationale for fuel poverty action being taken at a local scale, but it is the local nature of these organisations, their financial instability and their differentiation across England that emphasises how the procedural way generates understandings of fuel poverty that are locally grounded, particularly in terms of the solutions on offer. Fuel poverty is seen as something that staff can be trained to understand, and to provide help with through home visits and subsequent provision of advice and forms of home improvement and device provision

personalised to the resident's specific situation. This way of knowing does not understand fuel poverty as a binary condition that a household is clearly either in or not in or as a standard as calculated by quantitative information. It is understood as being located where a 'struggle' or need is identified, a referral or request is made, and certain material deficiencies (in the home and in technological devices), debt problems, or health vulnerabilities are identified. This locating process is also shaped by what priorities the organisation is working with and what capacities they have to respond.

7.4 Interactions and interrelations

The third research question centres on the interactions and interrelations between the three co-existing ways of knowing. In Chapter 6, the dimensions of these interactions were initially illustrated through exploring the intermediary status of local organisations. To systemize these more carefully it is helpful to consider both the flows of knowledge and the flows of resources between the different ways of knowing.

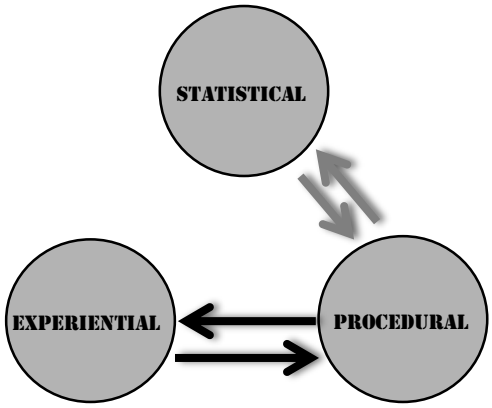
Figure 7.1 The flows of knowledge between the different ways of knowing fuel poverty



7.4.1. Flows of knowledge

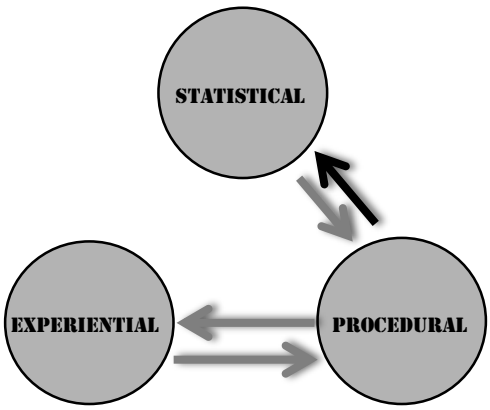
Figure 7.1 captures the interrelations between ways of knowing in the form of flows of knowledge.

Procedural – Experiential



The flows of knowledge in both directions between the procedural and the experiential (lines A and B in Figure 7.1) are relatively strong and potentially ongoing, as seen in the engagement between community organisations and householders through home visits, events, support and advice-giving. The self-selection by residents determines when and where the flow of knowledge from the experiential to the procedural (line A) first occurs; while the fuel poverty organisations' procedures to assess and engage with residents determines when the flow of knowledge from the procedural to the experiential (line B) begins and how long it is sustained for.

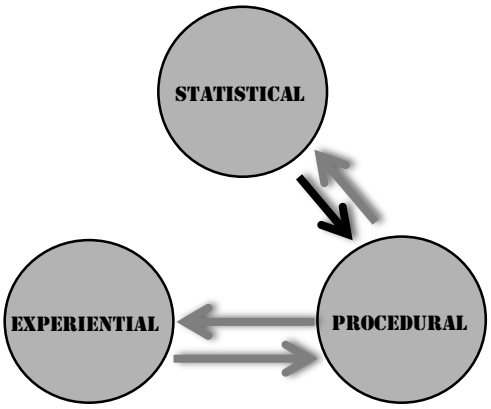
I have argued that there is clear potential for these flows of knowledge to be restricted, for people 'in need' to not be part of the flow of knowledge in either direction between the experiential and procedural. This flow is also very localised with organisations engaging with those in their specific community. The type of knowledge flowing from the procedural to the experiential is also situated as the organisations provide advice and support that reflects their ways of working and capacities to act within the conditions the local area.



Procedural - Statistical

Knowledge flows from the procedural to statistical ways of knowing (line C) through policy feedback and consultations. For example, before and during the Hills review community organisations (including those in this thesis) gave their response for a new statistical

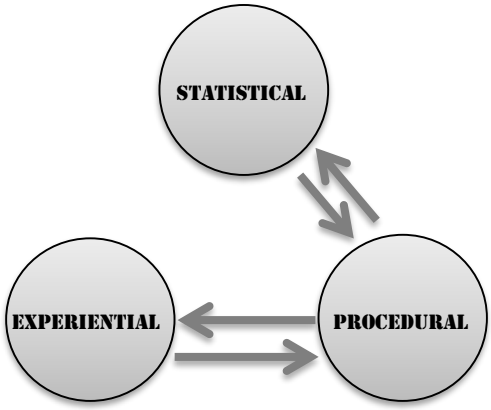
definition of fuel poverty. This flow is sporadic rather than ongoing or continuous, happening at specific moments, predominantly under the control of the national scale actors in terms of timing and the type of knowledge that is allowed to contribute. The Hills review (2011; 2012) signalled a change in definition and an opportunity for any group to 'insert' their expertise into the new classification through the consultation process. Organisations were offered a platform through which they could feed their ways of knowing into the shaping of the new statistical definition and model. This action would be a twisting of their expertise into the framework of classification with the intention of constructing the latest statistical definition of fuel poverty.



Statistical – procedural

The flow from the statistical to the procedural ways of knowing (line D) is less clear but present none the less. As made clear, local organisations are not deploying the national definition in how they identify and assess the fuel poverty status of households in their area. However national policy that targets fuel poverty is what often provides the broad funding these organisations tap into, even if through other organisations such as the local NHS or the local council. Less tangible but crucial is also how the statistical way of knowing, and the aggregate enumerations it generates gives the issue political weight and legitimates a level of concern that the procedural way of knowing then uses as a rationale for the continuing need for the work of local organisations.

Statistical – Experiential



As shown on Figure 7.1, there is no flow of knowledge between the statistical and experiential. The person in their home, as in the experiential way of knowing, does not 'know' or make use of the knowledge and processes that construct the statistical way of knowing. But does the statistical way of knowing understand anything of the experiential? The modelling uses survey data taken from real households. Also the modelling tries to take account of a households' vulnerability to

a certain extent but it does not engage with individuals and therefore with the sense of diversity that has been shown to be central to the experiential way of knowing.

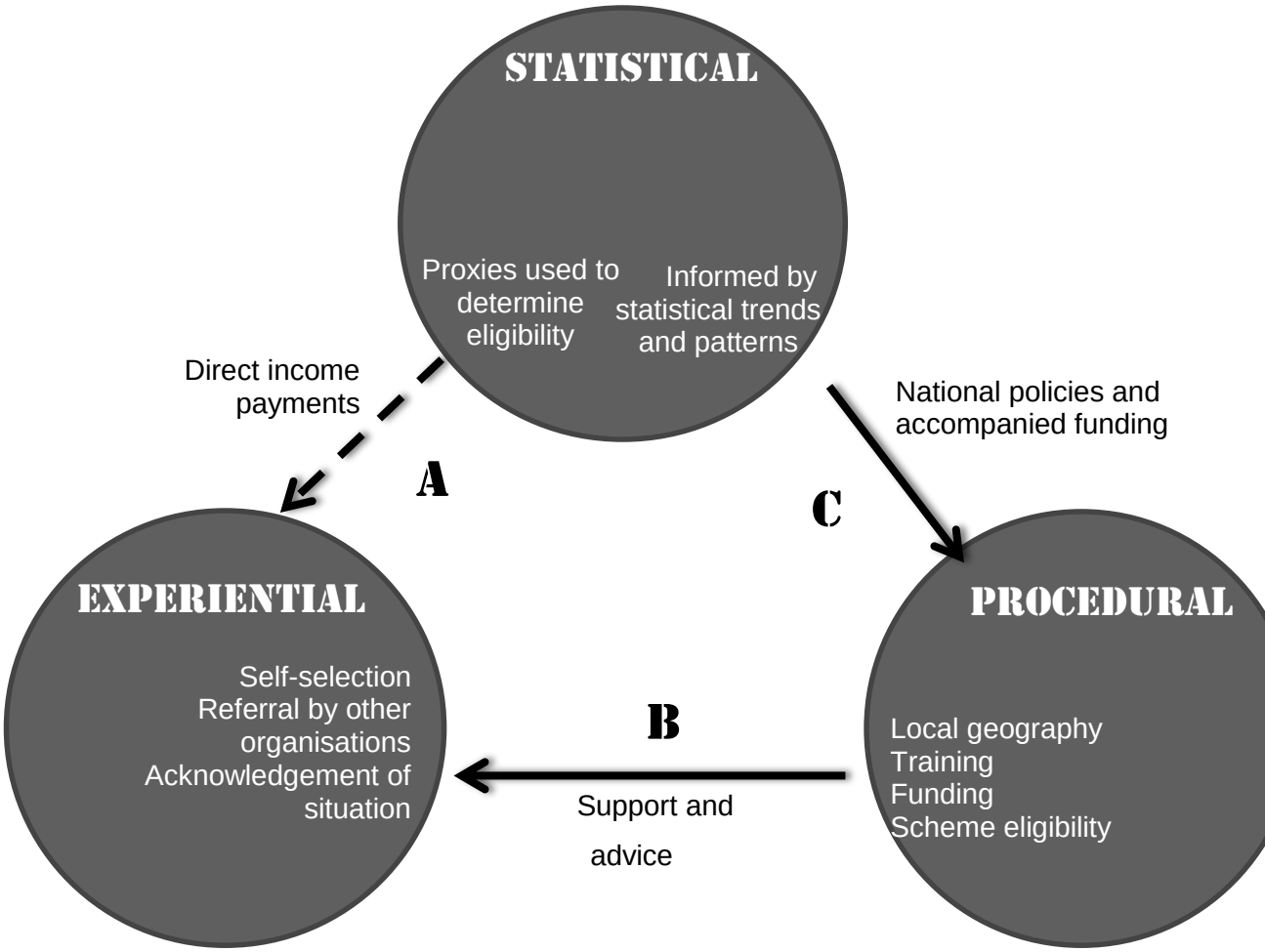


Figure 7.2 The flows of resources between the different ways of knowing fuel poverty. White text: enablers of resource flows. Black text: resources.

7.4.2 Flows of resources

As well as flows of knowledge, flows of resources are also important to how the three ways of knowing interrelate. Figure 7.2 shows the flow of resources that arise as a consequence of the different ways of knowing fuel poverty, in terms of what resources are involved and what enables these resources to move from one knowledge-making site to another. This explains what the characteristics of each way of knowing and their interrelations mean for the flow of resources and action to tackle fuel poverty.

Here we do see some interaction between the statistical and the experiential (line A). In a similar way to the flows of knowledge, it is in a distanced and detached relation and there is a lack of flow in the opposite direction, from the experiential to the statistical. Direct income payments aimed at alleviating fuel poverty (Winter Fuel

Payment, Cold Weather Payment as examples) are one way in which resources move from the government through criteria, informed by the statistical way of knowing, that determines those households that are the most at risk and in need. This is where the use of proxies allow the category creating work of the statistical way of knowing to be translated into a flow of resources to individuals deemed to be 'in need'. Additionally as in the flow of knowledge there is a strong flow of resources from the procedural to the experiential way of knowing (line B), which is shaped by the local geography, the training of advisors and funding of these organisations. It is also through the characteristics of the flow from the statistical to the procedural (line C) that the importance of the procedural way of knowing becomes apparent as these organisations act as intermediaries in the action against fuel poverty. These organisations have specific relations within their geographical area and within what work they are required to do. They are not just facilitators but have a strategic role to deliver specific tasks that are essential for the running of national efforts to tackle fuel poverty. For example, for nationally-funded schemes such as Green Deal, local organisations are necessary for funding to be drawn upon and reach homes and householders. Through these diagrams we see how the processes involved in making each way of knowing shape why, how and where resources flow between different actors.

7.5 Implications and recommendations

With fuel poverty and UK domestic energy policy more generally in a state of flux, it is important that practical and policy-based implications of the findings above are considered. This next section discusses the implications of this research and the subsequent six recommendations across policy and practitioner fields.

Summary of recommendations

1. A statistical or qualitative measure of fuel poverty is kept, maintained and updated over time
2. Community organisations gather further data, through their existing systems, to help report and measure their progress
3. In order to 'make every contact count' fuel poverty organisations provide training and expertise to a wide range of health and social care professionals
4. A stable and specially designed stream of funding is put in place to allow these organisations to operate over longer time scales
5. The government stipulate different targets for tackling fuel poverty at the national scale and the local scale
6. The additional data gathered from the use of smart meters across the UK is systematically reviewed and incorporated into understandings of fuel poverty, both statistical and procedural

As shown through this research, the statistical way of knowing is specific and unique, and in its abstract distinct from the other ways of knowing. It has its own specific purpose for giving the problem political weight and a degree of tangibility when allocating resources. Furthermore, it is the most established and widely used quantitative measure of fuel poverty and with the new LIHC definition in place it has enabled a new strategy (Department of Energy & Climate Change 2015b) for progress, including targets, on fuel poverty to be devised. For this reason, there is no question that a statistical or qualitative measure of fuel poverty needs to be maintained and updated over time. Although improvements on the transparency of compenent calculations within this measure could be made (see Simcock et al. 2016). This forms the first recommendation for policy arising from the research.

However, as is apparent through the procedural way of knowing, the statistical definition has little to do with the delivery of action on the ground. This disconnect appears to have little impact on the progress that organisations perceive they are able to make on fuel poverty in their community. However this thesis has provided a platform from which to ask questions about how local organisations, and action more generally, might be evaluated in a way that acknowledges the co-existence of different ways of knowing. This has been discussed via three particular points:

a) progress and monitoring happens at a national level through statistics at scale abstract from specific households

b) organisations are driven by helping people in their community and are not restricted by only helping those that come under the national statistical definition of fuel poverty
c) the national statistical definition is too complex and resource-requiring to use in the home

From here, how action should be evaluated is unclear. This problem has been recognised by prominent actors in the sector. For example, the Centre for Sustainable Energy (CSE), an independent national charity in England, has created a spreadsheet-based fuel poverty calculator that is informed by both the old and new statistical definitions (Centre for Sustainable Energy 2013). The most expensive and out of reach part of utilising and applying the definition in practice is the estimated energy costs of what would be required to achieve adequate temperatures, as this requires a BREDEM-based energy assessment (as explained in Chapter 4). Therefore the CSE fuel poverty calculator uses actual annual energy consumption, underlining the fact that if a household is calculated as fuel poor using actual consumption, it is likely that they would be fuel poor under the statistical definition because most households under-consume on the energy they would need to achieve 'adequate temperatures'. This is one way of using the statistical approach at a local level to evaluate the fuel poverty status of individual households.

Alternatively, existing literature has been interested in using residents' own judgement of their struggle to afford adequate energy services (Burholt & G Windle 2006). Individual residents' self-perception may be different from society as a whole, with the Hills review (Hills 2011) explicitly acknowledging that older people might be inclined not to admit their problems (supporting a key part of the analysis in Chapter 5 of this thesis). One advantage of subjective measures is that they allow for people's own choice and preferences (see Moore 2012). But as I have suggested with the medical evidence in tow, if this type of evaluation is used it can undermine the push to remove the risk of people living in an unhealthy environment and ignores the problem of 'implicit accomplices'. The second recommendation is therefore that community organisations gather data that can be used to evaluate their work and form a clear picture of the households that they are providing support to. Whilst this is partially done already, as shown through the use of home visit forms (section 6.3.2), the data that is collected needs to be connected to a clearly laid out understanding of what it means to be fuel poor to the local organisation and how that might be connected to the national situation of fuel poverty. By making improvements to this data collection by drawing a direct line to a national understanding of fuel poverty the

impact of the organisations action on the ground could be made more visible to others working at a local level and those working at a national level. Furthermore comparisons could be made *between* organisations to produce a more coordinated picture of the situation at a local level as well as provide a platform from which evaluation of different ways of tackling the problem could be made.

The use of a research design that spans across the three ways of knowing has revealed tensions in our understandings of what it means to struggle to achieve access to adequate energy services in England. The latest UK Fuel Poverty Strategy (Department of Energy & Climate Change 2015b) acknowledges the importance of different actors working together, with cross-sector partnerships being one of the perceived challenges and opportunities of future progress. The forward by the then Secretary of State, Edward Davey, stated that "we need an across government and across society approach if we are to succeed" (Department of Energy & Climate Change 2015: 7). Partnership working is said to be "the thread running through all our activity" (Department of Energy & Climate Change 2015: 39) but I would argue that an appreciation of the nature of the struggle at a local organisation level is also crucial in order to achieve this. The approach taken in this research has allowed us to see specifically *how* these three ways of knowing play out in the ways in which fuel poverty is tackled. By better appreciating the differences between these understandings of fuel poverty, we can conceive a cross-sector approach that better realises the importance of decisions made across all levels and scales. However, recent political developments have the potential to undermine such an integrated view and approach, as under the current framing of austerity there is little consideration of how government cuts will impact efforts to undertake action through partnership working (Department of Energy & Climate Change 2015b). This raises the question of whether there is sufficient support for the organisations that are expected to be working in partnerships.

One way that support is required for an improved cross sector partnership approach is through finance. The financial mechanisms in place have been shown to be insufficient to give organisations stability and permanency. One of the organisations in this study ceased to operate the energy and fuel poverty activities of its operations due to of a lack of funding at the end of 2015 (LESS 2016). Given that this thesis has shown how important these local organisations are in tackling fuel poverty in the homes of those in their community and how limited the flow is between the statistical and experiential way of knowing, the increasing pressure placed upon community service provision through austerity-justified cuts in other support (see (Lambie-Mumford et al. 2016) for a discussion of fuel poverty and austerity) raises

questions of whether community organisations working on fuel poverty will be able to maintain their vital current activities. It is recommended that a stable and specially designed stream of funding is put in place to allow these organisations to operate over longer time scales than the current provision does. So often the importance of these organisations is acknowledged in key energy policy documents (see (Department of Energy & Climate Change 2015b; Department of Energy & Climate Change 2013b). A concerted effort to formulate a cohesive national network for these organisations could help to strengthen this position, emphasising that they are a group working together and not just a disparate set of organisations.

The findings of this research illustrate the importance of the intermediary role that local organisations play in delivering action on fuel poverty to residents. Therefore the ways in which they directly engage with residents is a crucial part of how fuel poverty action is delivered in the UK (see Dodds & Dobson 2008; Royston et al. 2014). Schemes of fuel poverty support should be designed so that the work of local organisations is given more importance through time and resources. Undertaking home visits and direct engagement with householders are essential to engaging householders that may not have otherwise engaged with national schemes of support. Better targeting and the ability to reach those householders that are in the most severely affected by fuel poverty is a topical issue that causes disagreements with how to spend resources aimed to alleviated fuel poverty. In 2016 the energy minister was overruled by the chancellor of the exchequer amidst plans to improve targeting of the Warm Home Discount scheme as it was thought that just 15% of those receiving the scheme were fuel poor (Stewart 2016).

Referrals from one service organisation to another were predominately informal in the cases in this research but, according to the fuel poverty organisations, were seen as an opportunity to make the most of every contact with a householder and improve their reach to those who may not have come forward themselves, as the experiential narrative corroborates. Referrals are likely to be paramount if it's intended that as many households, and especially vulnerable ones, as possible are reached.

This juncture appears in another recent document that rethinks a fundamental rationale behind the risks of living in fuel poverty for householders. As part of a draft guideline on addressing excess winter deaths (National Institute for Health and Care Excellence 2014) – which as noted earlier are largely made up of people over 65 years old – the National Institute for Health and Care Excellence recommended that 'every contact counts' so that where health and social care professionals and others are undertaking work on peoples' homes and are thus engaging with householders' living situations, they should be alert to how well the energy needs of (vulnerable)

people are being met. I have argued that there are challenges involved in doing this in practice because of adaptations that people make to their situation and the ways in which householders can become implicit accomplices to injustice. If people do not identify their own vulnerability and/or it is obscured by their coping strategies, how are those entering the homes of strangers expected to assess whether households are experiencing difficulties in achieving access to adequate energy services? If they see evidence of blankets, hot water bottles and secondary heating being used, is this in and of itself evidence that there is a 'problem' that needs to be addressed? Balancing aspiration for warmth and concerns for cost sees people engaged in inter-related practices (Walker 2013) that can be difficult to disentangle or to make judgements about.

Nonetheless this is what community organisations working on fuel poverty have always been faced with. They are experienced at visiting residents in their home with this exact intention – to assess their needs for energy and to provide support where it is needed and wanted. The third recommendation is therefore that in order to 'make every contact count' fuel poverty organisations provide training and expertise to a wide range of health and social care professionals. Whilst this is already being done, this research shows that the action is often fundamentally based on the professionals choice to exercise their knowledge in different situations and often in a relatively informal way. However as community fuel poverty organisations are already doing this, it is possible to design and provide forms to judge someone's need. In line with previous recommendations, valuable data could be collected and used to further understand the needs of residents, not just by the fuel poverty organisations but those working in the wider community. This could be especially useful for those professionals with little experience of understanding how people may be coping or not identifying their own vulnerability. Making links to the benefits of addressing fuel poverty for different sectors and the potential savings (see Nicol et al. 2015; Hills 2012) that can be made, may be one way of encouraging this collaboration. All of this training needs to start from a basis of what the 'need' for energy is, how this can vary between different households and what coping strategies might infringe on people's health and wellbeing.

Furthermore this idea that 'every contact counts' gives attention not just to the three root determinants but to other individual factors (such as stability of household income, tenancy relations, social relations and ill health as put forward by Middlemiss and Gillard (2015) which can be flexible and fluid with changes over time and space. These aspects are not easily identifiable except by entering people's homes and understanding their situation as a whole, not just in terms of the three root

determinants. This gives attention to fuel poverty in the sense of a lived and emergent assemblage (Day & Walker 2013; Harrison & Popke 2011) rather than a statistical threshold.

Looking at the fundamental forms of knowledge and interactions that come to make up what we understand to be 'fuel poverty' and acknowledging that a range of aspects can be involved is useful, but where does this leave us in terms of how to tackle the problem? As the recommendations illustrate so far, the quantitative outputs from the statistical understanding of fuel poverty are important in terms of highlighting the scale and shifting patterns of a phenomenon that is seen to be politically significant. Meanwhile, the experiential and the procedural ways of knowing highlight what is happening on the ground, in the space of everyday lives.

7.6 Looking to the future

Fuel poverty policy is at an important crossroads. More than twenty years ago, Brenda Boardman's work was a catalyst for drawing politicians' and researchers' attention to the struggle of fuel poverty. In 2016 fuel poverty is still an issue, still a politically charged societal problem, still a central topic for consideration in the design of national energy policy and still a consideration for energy suppliers. 2017 will see the introduction of a new (set of) policies aimed at alleviating fuel poverty (Department of Energy & Climate Change 2015b) but it is not something that will be able to be remedied in the life of one single policy. Furthermore, the UK energy system will see considerable changes over the forthcoming decades as carbon emissions are intended to be drastically reduced, including aspirations to achieve almost zero emissions from heating and cooling of buildings (Department of Energy & Climate Change 2009; Department of Energy & Climate Change 2012c). This will result in a significant change to heating technology in the UK in homes that will require consumers' acceptability and understanding (Department of Energy & Climate Change 2012c).

There are a number of aspects of fuel poverty policy that come together to form a picture of the national effort to understand and tackle the situation.

Details and expectations of past fuel poverty targets have been notoriously poorly articulated (White et al. 2014; Moore 2012b). The most recent fuel poverty strategy has a target to ensure that fuel poor homes achieve a minimum energy efficiency rating of SAP band C by 2030, as the UK government believe that energy efficiency should be made a priority in tackling the problem (Department of Energy & Climate Change 2015a). This target places emphasis on fuel poverty-proofing the housing stock and evaluating progress in terms of the state of the housing stock, not

in terms of the number of installations undertaken or the self-perception of residents. This emphasises mitigation of fuel poverty focused on the long-term impact of domestic energy efficiency and therefore the subsequent energy consumption needed to achieve adequate energy services. This has long been argued as the best way to tackle fuel poverty since initial discussions began in the 1990s (Boardman 1991) and has continued to be pushed for by many campaigners and commentators (CSE 2014; Bird et al. 2010; National Energy Action 2011a; Energy Action Scotland & National Energy Action 2009). However, having found that the experiential understanding demonstrates little knowledge of the technical specification of the home and the procedural work of local organisations rarely engaging with this at a deep technical level, a target of this type appears to reiterate the disconnect between the statistical and the experiential and continue to put pressure on the procedural way of knowing to be an intermediary in terms of flows of knowledge and resources.

However there is another consideration for the use of this new target to tackle fuel poverty. What will the future look like if fuel poverty policies continue as they are at the moment? My analysis makes it clear that householders have a different definition or understanding of the problem than the government. Therefore whilst the current energy-efficiency focused target may be achieved, it leaves questions as to what progress might look like from the other ways of knowing. If and when this target is achieved, will there be no households that report a struggle to afford adequate energy services? Ultimately improving the energy efficiency of the housing stock will improve the experience for residents in their home. But will organisations base evaluations around the number of increased SAP points or bands that their action has led to? How does this change these organisations' role in giving behavioural advice and social support, given that this does not obviously translate into an improvement in SAP points? How will fuel poor households' experience of energy services be changed? Therefore my fifth recommendation is that the government stipulate different targets for tackling fuel poverty at the national scale and the local scale.

Looking at UK energy policy generally, householders will also be affected by the introduction of smart meters over the next decade (Department of Energy & Climate Change 2015b) and a move to low carbon heating by 2050 (Department of Energy & Climate Change 2012c). Both of these changes brings with them substantial opportunities where householders, fuel poor and non-fuel poor, will be interacting with their domestic energy systems differently than previously *and* be in direct contact with organisations involved in domestic energy services. Therefore, this

is a key time when lessons from this research can be learnt and applied to this national roll out of smart meters.

Furthermore, the move to roll out smart meters across the UK comes with a number of potential changes to the technology that householders' use as part of their everyday energy consumption, such as with the introduction of in-home energy consumption displays, smart heating controls and time-of-use energy tariffs. Residents will have access to more information about their energy consumption, accurate and in real time, relatable to specific costs and specific energy services. This will be a substantial change to the potential knowledge that the experiential way of knowing has available and may change the way that people are able to judge their own situation. They will have, for the first time, access to accurate detailed high-frequency data (Darby 2012) that can be compared with other households that also has some commonality with how the statistical way of knowing understands fuel poverty. In-home displays will be drawing on a quantification of energy consumption, through utilising real time measurements. Furthermore, it is likely that national data from smart meters – available on a scale and over a breadth never seen before in England for domestic energy consumption - will inform, change and improve the accuracy of the modelling of the required energy component for the creation of fuel poverty statistics through increasing the evidence base on accurate energy consumption data. The sixth recommendation is that the additional data gathered from the use of smart meters across the UK is systematically reviewed and incorporated into understandings of fuel poverty, both statistical and procedural.

Whilst the presence of some modelling assumptions and certain coefficients may be kept, with all this data potentially available, a clearer, more accurate and reliable picture will emerge of average domestic energy consumption in English households in a way that the modelling processes for fuel poverty can ultimately be collaborated and improved if necessary. The LIHC definition of fuel poverty is designed with an intention of not leaving fuel poor households behind as standards improve across the board (Department of Energy & Climate Change 2015b). Despite this, it is likely that there will always be some householders in England that report a struggle to afford adequate energy services, especially as energy prices are likely to increase.

7.7 Further research

The conclusions of this thesis demonstrate the importance of the intermediary role of local organisations, in terms of flows of both knowledge and resources. However this is not reflected in research and existing literature. Sheldrick and

Macgill's paper in the late 1980s (Sheldrick & Macgill 1988) is the closest in similarity to the research I have undertaken on local organisations. But the work of local organisations tackling fuel poverty has changed drastically since, in both policy and the broader social, political and financial context of the UK.

There are two key aspects that require urgent attention from the research community. Firstly, deeper examination needs to be made of how both other parts of energy policy and work on the ground may rely on assumptions about how fuel poverty might be known differently. Without further research there is a risk that efforts to tackle fuel poverty will extoll the use of partnerships, but not properly understand or plan for how partnership working can best be executed. Secondly as already mentioned, National Institute for Health and Care Excellence (2014) proposed that various workers going into households should use this opportunity to make a judgement of how well adequate heating needs are being achieved, but do the other areas of policy allow or enable this? Questions need to be asked about the training that is required to engage with residents effectively, drawing on lessons already learnt, and how this variety of organisations would provide what is necessary to implement different energy policies, including cutting the cost of keeping warm. Applying existing work on intermediaries (Guy et al. 2012) more thoroughly to the case of fuel poverty and coupling theoretical work with empirical would enable further research to make a significant contribution to our understanding of what fuel poverty is a problem of and how future progress could be made more effective.

7.8 Reflections on methods

As with doing any research time and resources are not endless and compromises must be made. I started the PhD with the intention of looking at the role of a shift to tackling fuel poverty locally, but the importance of the three ways of knowing quickly became apparent. In capturing all three, compromises had to be made in the depth that each of them could be investigated. In particular, the statistical way of knowing draws only on secondary materials, largely government documents and reports. Semi-structured interviews were carried out with three key informants that appeared central to understanding this way of knowing fuel poverty, but these did not in fact shine much light into 'the black box' of the processes involved in operationalising the national definition. Further interviews could have been attempted by time constraints did not allow for this, and the judgement was that sufficient could be gleaned from information that was already available in detailed modelling methodology documents.

Through my reflections on emotions and vulnerability (in Chapter 3) and the reflective tone of the analysis of the procedural and experiential ways of knowing, it is apparent that the emotional effect of conducting this research has been profound for myself in terms of my personal identity and my identity as a researcher. Whilst I have taken part in the academic community doing research on fuel poverty (through workshops and conferences) it is the time I spent with the three organisations and people in their homes that were the most valuable. These experiences drive a social concern that, without seeing first hand, is difficult to understand in terms of the complexities that residents and local organisations are faced with. As is crucial to my argument, fuel poverty often feels as though it is hidden. After the time I spent in communities, I did not see houses and the people living in them in the same way. This engagement allowed the research to feel driven by the concern on the ground, for introducing new ideas into a situation that affects a vast number of people at home and in the everyday work of those in community organisations, not just those directly tackling fuel poverty but any that are engaging with helping people in all aspects of life. However this research is just one academic's attempt to obtain a PhD and give a voice to those who are not always heard in academic and political circles. The people it talks of – organisations and residents – have a vast wealth of knowledge that this research is a drop in the ocean in comparison to. This thesis introduces new ideas and academic analysis but there is much more to say on the action against fuel poverty on the ground.

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Information leaflet

What is the research about?

I am a postgraduate researcher at Lancaster University conducting a study to understand how older people are assisted by local organisations to keep their home warm affordably. The research looks at the role of organisations delivering energy efficiency measures and energy advice. The findings of the study will help housing designers, energy advice organisations, older people's advocacy organisations and older residents to live in warm and healthy homes at a reasonable cost.

The research is part of my PhD in geography at Lancaster Environment Centre. It is funded by the Economic and Social Research Council, a national UK research council.

This PhD fits alongside an ongoing collaboration project between Lancaster and other UK universities as part of the 'People, Energy and Buildings' programme. It is a 2 year project running until end of 2012 led by Manchester University called 'Conditioning Demand: older people, diversity and thermal experience'.

Invitation

You are being invited to take part in the research project. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please contact me if you are unclear about anything or if you wish to have more information about the research. Thank you for reading this information sheet.

Why have I been asked to participate?

You have been invited to take part because you are a resident that has been assisted by a local organisation, [organisation X]. I am asking 20 to 40 residents across the UK to take part in the research.

It is up to you whether or not to participate. If you make the decision to participate, you will be given this information sheet to keep and you will be asked to sign a consent form at the start of the interview. You are able to withdraw from the project at any time without giving a reason.

What will happen if I decide to participate?

If you decide to take part in the project, I will visit your home over the next few months at a time most convenient for you. You are encouraged to invite a relative, neighbour or friend to be present during the visit. An interview will then be conducted with you for approximately an hour. We will talk about how you keep your home warm and comfortable and how you may have been helped to do that. As well as talking about your experience with the local organisation, you will also be asked to show the interviewer the ways that you keep warm and how you use things around the home to do this. The interview will be audio recorded with your permission. You do not have to answer every question and can ask for anything to be removed from the audio recording if you wish. There are no right or wrong answers; I am interested in your opinion and your situation, please feel free to express this without worrying about any judgement.

Approximately three months later, I will phone or visit your home for a follow-up conversation to see if things have changed and how the previous winter months have been in your home. This will last around 15 to 30 minutes.

After these two conversations, there is nothing else required of you. Participating will not result in a change in circumstances of any kind.

As a reward for participating in the study, you will receive a £20 voucher for a local grocery store.

What will happen with the information?

The findings of the research will be published in reports and academic publications and presented at academic conferences. A summary of the research findings will be sent to you by post or email.

The collection, storage, disclosure and use of research data by the researcher will comply with strict regulations of the Data Protection Act 1998. All of the data collected during the course of the research will remain strictly confidential. Access to the information will be restricted to the research team at all times, before, during and after the research activities. Personal information that could identify you will not be included in any reports or publications. The research project has been ethically approved by the Lancaster University Research Ethics Committee.

Despite precautions you should be aware that no data management system is infallible and there is always a small risk that your anonymity and confidentiality may be compromised through unforeseen circumstances.

What if something goes wrong?

If you are unhappy with the way the research was carried out and you wish to make a complaint then you can contact the supervisor of the project: Professor

Gordon Walker, Lancaster Environment Centre, Lancaster University, Bailrigg, LA1 4YD 01524 510256

Alternatively, to speak to someone independent from the project please contact Dr Will Medd, Lancaster University by w.medd@lancaster.ac.uk or 01524 510263

For more information, please contact:

Ms Rose Chard, Lancaster Environment Centre, Lancaster University, Bailrigg, Lancaster LA1 4YD 01524 510221 r.chard1@lancaster.ac.uk

Thank you for taking the time to read about this project.

Checks before interview starts...

- ☑ Consent form signed and understood
- ☑ Audio recorded
- ☑ Can refuse to answer a question at any time and stop the interview at any time
  Note down:
- ☑ Age
- ☑ Home information
- ☑ Health conditions known of

Daily routine

- How long have you lived here?
- How comfortable do you find living here?
- What is your usual daily routine?
  - Does it vary much?
  - Weekdays
  - Weekends
- Where do you usually spend your time in the day?
  - Are you mainly at home?
  - Do you spend much time out of the house?
- How active are you usually?
- If you are starting to feel cold indoors, what do you usually do to keep warm?

Heating

- Do you think your heating system is adequate for you to keep warm?
- What is your usual daily routine with your heating?
- Do you use or heat different rooms differently?
- At the moment, do you keep the heating on all day or for parts of the day?
- How do you adjust your heating?
  - From the boiler
  - TRVs
  - Thermostat
- How confident do you feel doing that?
- And is your routine the same in the other seasons of the year?
- Have you had any problems with heating system?
- Do you do any maintenance on your boiler or the heating system in general?
- Do you use any other appliances to keep warm? E.g. halogen heater, open fire.

- Why do you use that?
- What benefits do you see from xxxx?
- Water heating

Energy efficiency measures

How energy efficient do you think your home is?

Do you think that your house keeps the heat in well?

Insulation

- What insulation do you have in the house at the moment?
    - If yes, Why did you have it put in?
    - If no, have you thought about having it put in? Why?
- If yes, how long have you had it?
- If no, did you notice any changes after you had it put in?

Draught proofing

- Have you done any draught proofing in the house?
    - If yes, why did you do that?
    - If no, have you heard of it? Would you ever think about doing it?

Ventilation

- Do you think ventilation is important?
- When you are in the house, do you tend to have the doors open or closed?
    - And the windows?
- Have you ever thought about improving the energy efficiency of your home? (DG, insulation, condensing boiler)
    - What stopped you from doing it? OR
    - Why did you do it?
- If yes, do you think having [DG, insulation etc] *does* make your home more comfortable?
- If no, do you think having [DG, insulation etc] *would* make your home more comfortable?

Mould and damp

- Do you have any problems with mould and damp?
- Does it cause you any problems?
- If so, have you done anything about it?

Energy supply (ier)

Energy bills

- Do you worry about your energy bills?
- Do you try and reduce or limit your energy bills?

- What sort of things do you do to keep these [energy bills] down?
- Do you feel able to manage your energy bills? If so, how do you do this?

- Have you ever had debt with your energy supplier?
    - If yes, what have you done about it in the past, if anything?
- Do you receive Winter Fuel Payment – a direct payment of £250-350 from the government? Do you spend it on your energy bill? Same for Warm Home Discount
- If you thought about your energy bill, what do you think it is mainly made up of?

Problems

- If you have ever had (other) problems with your energy supplier, what have you done about it?
    - How did it make you feel?
    - Why did you do <u>that</u> in particular?
- Have you ever switched tariff or would you consider doing so in the future? Or had you switched tariff before you met [the org] and if not, what stopped you?
    - How did you do it or how would you go about it now?
    - Why would you not do it? Or what difficulties do you find in it?
    - Do you feel a certain loyalty to your energy supplier?
- Is your energy supplier, or energy suppliers in general, someone that you trust? Please explain why.

If yes to energy debt, then were [the org] able to help you in any way with this? Or did you learn anything from [the org] that would make you tackle the problem differently?

Did [the org] give you any advice on how to deal with (the problem/the energy supplier)?

<u>Keeping comfortable</u>

- Are there other ways that you keep warm when you're at home?
- Do you wear any particular clothes when it's cold?
- Do you use hot water bottles or blankets etc to keep warm?
- Have you always used these things?
- Do these things make you feel comfortable?
- What other things do you do to feel comfortable if you are at home?

- Do you like to have certain lights on

- Do you ever feel too warm? If so what would you do in that situation?

So far we've mainly been talking about the daytime activities, what about at **night**?

- How do you usually heat your bedroom ?
- Apart from the heating, do you do or wear anything in particular to keep yourself at a comfortable temperature?

Health and well being

- How important is it for you to feel warm and comfortable?
- Do you think that the environment you live in has an effect on your health and wellbeing?
- What do you think the effect of having energy efficiency improvements would have on you in general?
  - Your health
  - Your bills
- Earlier you mentioned your health had worsened, when your health deteriorated, did you have trouble keeping warm or getting too hot? What could you do about this?

Being older

- When the phrase 'older people' is used, how do you feel about that? Do you feel that you identify with that?
- What other words or phrases would you identify with?
- Do you think that older people struggle during the winter? Why? Or how well do you think older people cope in winter/with energy bills?

OR How well do you think people cope with their energy bills during the winter? Do older people cope the same?

- Do you feel that there is enough help for older people in winter? Or with energy bills?
- Do you feel there is enough support for older people living in [the area]?
- Looking back over your life, has there been any times that you can remember you were particular comfortable/warm at home?
- Do you see any times in your life when you were more or less able to manage your energy use?

- Do you feel you could deal with *energy management and bills* as well or better when you were younger? And why?
- Looking into the future, how do you feel about your ability to keep warm and manage your energy bills?
- Have you ever thought about moving house in the future?

Family and friends

In the home

- Who has responsibility for paying the energy bills?
- Have you always played or not played a role in paying for the energy bills?
- Who has responsibility for controlling the heating?
- Does your partner/wife/ husband help you with….the bills, keeping warm, understand the heating system?
- Do you talk to your friends/neighbours about keeping your home warm?
- Do you talk to your friends/neighbours about your energy bills/ finances?
    - How does that make you feel?
- Do you think that everyone has similar experiences of being at home?
- Do you think that everyone manages their energy at home the same way?

Outside of the home

- Do you have (other) visitors? Do you see them very often?
- Do they come here or you go elsewhere?
    - Do you change anything about heating when they come here?
    - Do you do anything different with the heating or lights when you leave?
    - When you go to your family or friends homes, do you notice that they do things differently or similarly to you [with their heating etc]?
- And when you go out, what do you do with the heating?
- When you go out, do you feel the cold? Do you do or wear anything in particular to make yourself feel more comfortable?

The organisation

Contact

- How did you get in touch with the organisation?
    - If you contacted [the org] yourself, why did you do that?
- Had you heard of them before? *I.e. why have you not contacted them before?*
- Why do you think that the organisation came to visit you? *I.e. what was the 'problem' they came to solve?*

- When you met the staff/advisor, how did you feel? Or During the home visit, how did you feel?
- Was the experience what you expected it to be?
- What help did the organisation give you?
- Is the organisation local to you?
- Did the fact that they were or were not local affect your opinion of them?
- Is it important to you that they are local?

Advice

- Was the organisation able to offer you advice that was useful? Or was the advice given to you useful?
- Did they give you any advice on keeping warm? And keeping bills down?
- Have any other organisations or charities helped you at home?
- Do you think other people in [the area] would need or want help from [the org]?

Physical infrastructures

If the org changed anything about the material systems in the home…

- Have you notice any difference since you had xxx done/installed?
- What effect has having xxx installed had on your situation?
- What effect has having xxx installed had on your health and wellbeing?
- How has this changed the why you feel about your situation?

Other help

- The org rang the energy supplier, was this something you particularly wanted help with? Or were unsure about doing before?
- Is there any other help you would like to see being offered?

Appendix C – analytical coding framework