The lived experience of energy vulnerability among social housing tenants: emotional and subjective engagements

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Dominant policy understandings of fuel poverty tend to overlook its lived experience. This results in narrow, overly technical problem framings and solutions that neglect the multiple, inter-related and dynamic factors that shape experiences of fuel poverty in situ. Recent qualitative work that has examined the lived experience of fuel poverty has begun to recognise the importance of emotional and subjective experiences to experiences of energy vulnerability, but these are generally regarded as consequences of the problem and thus are not treated as central to analyses. This paper explores a range of emotional engagements with energy vulnerability. The paper draws on new empirical data taken from 16 semi-structured interviews with social housing tenants as well as 10 interviews and a focus group (n=8) with housing association employees. Three distinct forms of emotion engagement were identified as of critical importance for experiences of energy vulnerability: i) worry, fear and control; ii) relationships of care; iii) embarrassment, trust and gratitude. Crucially, and for the first time, the paper shows that emotions are not merely a consequence of energy vulnerability but can also help to cause it. The paper concludes with a discussion of the policy implications of these findings.

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Abstract
Dominant policy understandings of fuel poverty tend to overlook its lived experience. This results in narrow, overly technical problem framings and solutions that neglect the multiple, inter-related and dynamic factors that shape experiences of fuel poverty in situ. Recent qualitative work that has examined the lived experience of fuel poverty has begun to recognise the importance of emotional and subjective experiences to experiences of energy vulnerability, but these are generally regarded as consequences of the problem and thus are not treated as central to analyses. This paper explores a range of emotional engagements with energy vulnerability. The paper draws on new empirical data taken from 16 semi-structured interviews with social housing tenants as well as 10 interviews and a focus group (n=8) with housing association employees. Three distinct forms of emotion engagement were identified as of critical importance for experiences of energy vulnerability: i) worry, fear and control; ii) relationships of care; iii) embarrassment, trust and gratitude. Crucially, and for the first time, the paper shows that emotions are not merely a consequence of energy vulnerability but can also help to cause it. The paper concludes with a discussion of the policy implications of these findings.

Keywords: Fuel poverty, energy vulnerability, emotions, qualitative, interviews.

1. Introduction

It is now 27 years since the publication of Brenda Boardman's landmark book on 'Fuel Poverty: from cold homes to affordable warmth' (1991). In this period, research on fuel poverty has grown dramatically. Fuel poverty is now recognised as one of a number of ways of conceptualising problems of energy deprivation, experiences that are configured, defined and experienced in different ways in different countries (Bouzarovski and Petrova, 2015). The fuel poverty research community has also grown to span across multiple disciplines including geography, sociology, psychology, medicine and health studies, architecture and engineering as well as business and economics.

Despite this growth and diversity, however, a considerable proportion of research and particularly policy (particularly in the UK context) conceptualises fuel poverty as resulting from a combination of just three factors which were central to Boardman's (1991) seminal work: low income; energy inefficient homes; and high energy costs (BEIS 2018a). Whilst drawing important policy attention to the issues of energy deprivation, this dominant

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framing of the fuel poverty problem has the effect of reducing fuel poverty to primarily a technical problem in two different senses. Firstly, in that the problem itself is primarily 'known' through the production of annualised statistics based on modelled data which are used to provide the 'objective' measures of fuel poverty that guide policy and interventions. Fuel poverty is thus understood as a statistical problem of rates and trends in the population (BEIS 2018a), rather than as the daily lived experience of individuals. Secondly, the dominant approach is technical insofar as the focus on energy efficiency lends itself towards technical solutions. This technicalisation of fuel poverty has two important effects. First, it excludes other ways of 'knowing' fuel poverty, particularly those which relate to the experiences of households and which consequently seek to recognise a broader range of contributory factors. Second, an overly technical understanding of the problem forecloses alternative strategies and forms of intervention.

This paper therefore contributes to a growing body of literature which is broadening the ways of understanding and conceptualising fuel poverty. As discussed below, much of this work involves the qualitative exploration of the lived experience of fuel poverty, often engaging with the broader concept of energy vulnerability. This work seeks to expose the subjective and experiential dimensions of fuel poverty and in doing so contributes to the growing critique of the dominant technical narrative outlined above. Much of this research highlights the fact that experiences of fuel poverty are often deeply emotional, often in quite negative ways. Yet the emotional aspects of fuel poverty are often presented as incidental factors within a broader experience, and also almost always as the *effects* of fuel poverty. This paper seeks to deepen the analysis of emotional engagements within experiences of fuel poverty by drawing on a broader set of ideas from the social sciences. In doing so it seeks to put emotions at the centre of analysis. More specifically, it seeks to demonstrate how emotions play a critical and active role in shaping both experiences of fuel poverty as well as trajectories into and out of it.

The paper is structured as follows. Section 2 reviews some of the existing literature on fuel poverty, briefly outlining the dominant technical understanding before moving onto energy vulnerability and then outlining a relational approach to emotions which envisages the performance of emotions as being deeply implicated in everyday practices. Following a brief description of the methodology we present our findings, organised around three different areas of emotional engagement. Finally, the conclusions summarise our findings as well as offering some suggested implications of this research for both fuel poverty but also for energy research more widely.

2. Literature review

2.1 Technical understandings of fuel poverty
The technical understanding of fuel poverty emanates from Boardman's (1991) original '10% definition' whereby a household is considered fuel poor if it must spend more than 10% of its income on fuel to maintain a heating regime deemed satisfactory. This framing of the issue gives rise to three distinct forms of intervention as appropriate ways of trying to tackle fuel poverty. First and foremost are efforts to tackle fuel poverty through improving the thermal efficiency of buildings. For example, in the UK programmes such as Warm Front,

CERT (the Carbon Emissions Reduction Target) and ECO (the Energy Company Obligation) have sought to improve energy efficiency in low income households (Sovacool, 2015). Second, are attempts to assist low income households with high energy costs, through targeted discounts on energy bills, such as the UK's Warm Home Discount or benefits such as the Winter Fuel Payment for elderly householders (BEIS, 2018b). Finally, third, are attempts to improve the functioning of energy markets by encouraging fuel poor households to switch supplier in an effort to reduce household energy costs, this is particularly so in light of reports that highlight a correlation between low incomes and low rates of switching (Ofgem, 2016).

In 2013 a new 'Low Income, High Costs (LIHC) definition of fuel poverty was adopted for England following the Hills Review (Hills, 2012). Under this approach, a household is defined as fuel poor if it has higher than median fuel costs *and* meeting these costs would mean it had lower than median income. The stated purpose of this new definition was to decrease the sensitivity of fuel poverty statistics to changing energy prices, as well as to remove those with high incomes and low costs from official statistics. As part of what Middlemiss (2017) describes as a 'new politics of fuel poverty' however, this new definition has served to reduce the appropriate means of tackling fuel poverty even further by 'concealing' the role of the market in fuel poverty. As a result, despite continued policy focus on encouraging 'rational' consumer behaviour and efforts to make it "easier for households to navigate competitive energy markets to ensure that more households can get the best deal for them" (DECC, 2013, p31), fuel poverty in England has effectively been reduced to a technical problem of energy efficiency, indicated by the primary target in the government's updated fuel poverty strategy for England being "to ensure that as many fuel poor homes as is reasonably practicable achieve a minimum energy efficiency rating of Band C, by 2030." (HM Government, 2015, p.12). In Middlemiss' (2017) words, the new politics has framed fuel poverty such that it "can be solved by energy efficiency measures alone, and…attempts to address income inequality or challenges of the energy market are irrelevant" (Middlemiss, 2017, p17).

2.2 Energy vulnerability and the lived experience
Approaches that see energy efficiency and supplier switching as the most appropriate solutions to fuel poverty generally align with what Ambrose and Marchand (2017) describe as a 'positivist perspective' within fuel poverty research. This 'techno-economic' perspective (Webb et al, 2016) underpins much of the UK fuel poverty policy, seeking to quantify the extent and depth of the fuel poverty problem often by drawing on macro-level statistics, such as data on patterns of income distribution or building energy efficiency ratings (e.g. BEIS, 2018b; Emden et al 2018; NEA 2017). At the same time, Ambrose and Marchand (2017) identify a 'schism' in fuel poverty research between this positivist approach and more recent, though much less common, work that has "explored the lived experiences and consequences of living in cold homes using more ethnographically inspired qualitative approaches" (2017, p876). In short, the positivist perspective is increasingly critiqued as being divorced from everyday life both in how it: i) isolates economic decision-making about energy use from the wider dynamics and concerns of everyday life (rationalism), and ii) adopts a narrow, technically specified understanding of the problem (poor energy efficiency) instead of exploring the broad constellation of issues that render households 'energy vulnerable' (Bouzarovski et al 2013).

Whilst there is some definitional variation around the precise meaning of energy vulnerability, authors who use this term tend to operationalise it in ways that share some common features. First, energy vulnerability is used to draw attention to a much wider set of factors that extend beyond (or within) the traditional fuel poverty triad. For example, Bouzarovski and Petrova (2015) adopt factors of Access, Affordability, Flexibility, Energy Efficiency, Needs, and Practices. In contrast, Middlemiss and Gillard (2015) use the factors of Quality of Building Fabric, Tenancy Relations, Energy Cost and Supply, Stability of Household income, Social Relations, and Ill health. The argument, in both of these cases, is that changes in each of these multiple elements, or in the relationships between them, can materially affect a household's access to affordable energy. The intention is to recognise the multi-dimensional nature of energy vulnerability and to broaden out the range of different factors that are understood to be significant in the production and amelioration of fuel poverty (Baker et al 2018). Following on from this, a second stated advantage of energy vulnerability is that it provides a more fluid, temporal account of people's experiences of fuel poverty. In other words, a focus on the many dynamic factors that render households energy vulnerable recognises that households can (and frequently do) move both in and out of fuel poverty (Middlemiss and Gillard, 2015). In short, energy vulnerability serves to highlight the precarious and unstable nature of many experiences of fuel poverty, in a way that is neglected by macro-level statistics. In this way, an energy vulnerability framing typically challenges the way in which 'objective' measures of fuel poverty produce a binary, whereby subjects are either 'in' or 'out' of fuel poverty, pointing instead to a fluidity around the margin of any given statistical definition. Third, and finally, Bouzarovksi and Petrova (2015) also argue that energy vulnerability approaches serve to challenge dominant socio-demographic understandings of fuel poverty that focus on vulnerability as a characteristic of specific consumer groups, by instead drawing attention to energy vulnerability as the product of a range of structural factors as they come together in specific socio-technical settings.

Alongside other important implications – such as the vital role of health, housing and welfare policy in creating the circumstances for energy vulnerability and the resulting urgent need for joined-up policy approaches that extend far beyond energy efficiency and energy market correction - a key insight from the recent turn to energy vulnerability has been to highlight the lived experience of fuel poverty. Much work in this area has documented the often extreme ways of coping that energy vulnerable households must resort to, from spatial and temporal rationing of heating (Anderson et al, 2012), to the heat-or-eat dilemma (Lambie-Mumford and Snell, 2015), to adjusting routines and using additional layers (Chard and Walker, 2017). As part of this, the subjective experience of fuel poverty has frequently surfaced as a critically important concern. In particular, energy vulnerability is increasingly recognised as an intensely emotional experience sharply characterised by often highly negative and potentially detrimental emotions. For example, multiple accounts of energy vulnerability highlight considerable levels of worry and anxiety caused by high energy costs and the variability and apparent unpredictability of energy bills (Middlemiss and Gillard 2015; Ambrose et al 2016; Tod et al 2016). Poor quality housing is recognised as a cause of unhappiness, with persistent damp and mould being a constant source of distress and frustration; cold, uninviting and potentially malodorous homes (due to damp and mould) are also noted as a source of stigma and embarrassment (Butler and Sherriff 2017), as are

many coping mechanisms such as putting on additional clothing, wrapping up in duvets or blankets or using hot water bottles to stay warm (Day and Hitchings 2011; Chard and Walker 2016). Landlord-tenant relations in the private rental sector are 'characterised by fear' (Ambrose et al 2016, p. iv), and, partly as a result, many energy vulnerable households suffer psychological stress as a result of social isolation (Grey et al 2017), marked by a lack of trust in energy companies or housing providers (Lorenc et al 2013).

Whilst emotions have therefore been a growing presence in research on energy vulnerability, to date they have never taken centre stage. This is perhaps because, in almost all cases, the emotional experience is conceptualised as a negative side-effect of, or reaction to energy vulnerability, rather than as something which contributes to or shapes it (cf. Scheer 2012). For example, Butler and Sherriff (2017) do more than most to identify a wide range of different emotional experiences in their excavation of the psychological experiences of energy vulnerability among young adult households, but the negative emotional experiences they identify are all conceived as resulting from energy vulnerability, rather than feeding-in to it. Damp, mouldy and potentially smelly homes are, for instance, positioned as a 'threat' to identity and sense of self, and being forced to compromise or make sacrifices over household energy is recognised to "*cause* considerable psychological concern" (p976, emphasis added). Similarly, Grey et al (2017) identify 'reduced emotional wellbeing' as a "socio-economic factor associated with fuel poverty" (p903). They note, for example that "living in a cold home may *contribute to* poor emotional wellbeing" (p907, emphasis added) and that the "psychological stress *resulting from* heating bills were felt to *trigger* feelings of being 'miserable', 'depressed', 'anxious'" (p907, emphasis added). In short, whilst emotional experiences have a strong presence in this work, the nature of their relationship with energy vulnerability is not explored further.

A few studies have gone a little further here. For example, the 'Warm Well Families Research Project' (Tod et al 2015) recognised that the behaviours of energy vulnerable households were, in part "*driven by*" emotions such as fear of debt (2016, p10, emphasis added). For Middlemiss and Gillard, while not explicitly discussing emotions, they recognise such subjective experiences as potentially generating energy vulnerability, rather than simply resulting from it, for example: "[t]he subjective experience of fuel poverty is hugely important, because if families feel that they are not warm enough, not able to afford energy, they begin to see more extreme coping mechanisms as legitimate, which may lead to other health and social problems" (2015, p152). Whilst emotional experiences have been increasingly recognised in accounts of energy vulnerability, much more remains to be done to fully explore how energy vulnerability both shapes and is shaped by emotions. To do this, we draw on a growing body of work that conceives of emotions as social and cultural practices (Ahmed 2004).

2.3 Emotional entanglements and energy vulnerability
Emotions have historically been viewed as inferior to thought and reason (Ahmed 2004), as introducing bias and thus clouding vision and impairing judgement (Bondi 2005b), and thus as an essentially private matter that should be intentionally kept out of both research and policy (Anderson and Smith 2001). As outlined above, this has certainly been the case in most fuel poverty policy and research, where the dominant focus has been on rationalism and efficiency. In recent years, however an increasing number of disciplines have begun to

pay attention to the hitherto overlooked role that emotions play in different aspects of everyday life and decision-making, including geography (e.g. Anderson and Smith 2001; Bondi 2005a; Pile 2010), sociology (e.g. Burkitt 1997; Barbalet, 2002), social psychology (e.g. Lawler, 2001), and cultural theory (e.g. Ahmed, 2004) amongst others. As Anderson and Smith put it, "to neglect emotions is to exclude a key set of relations through which lives are lived and societies made" (2001, p7). Thus, to overcome the silencing and side-lining of emotions, they should be recognised as "ways of knowing, being and doing in the broadest sense" (2001, p8).

A key debate in the upsurge of research on emotions centres on precisely how to conceive of emotions, about what form they take and where they reside. Here, there has been a gradual move away from a psychological or physiological approach which sees emotions as the possessions of individuals, reflecting their 'inner' state, towards a conceptualisation of emotions as 'relational' entities that exist in their 'between-ness' (Bondi 2005a), serving to connect both people and things (Burkitt 1997). Ahmed (2004) casts emotions as social and cultural practices that "stick to some objects, and slide over others" (Ahmed 2004, p8). In the process, emotions serve to create the surfaces and boundaries of those objects – whether people or things – shaping how to understand and respond to them. Scheer (2012) further develops the concept of 'emotional practices' noting that emotions are not "universal features of subjectivity" (p200) but are instead mobilized, named, communicated and regulated in different ways across time, place and culture. In short, people are socialised into experiencing and performing emotions in particular ways and the effects of these socialisation processes have material consequences. Within this relational, practice-based view, the focus thus turns to the effects of emotions, to the question "What do emotions do?" (Ahmed 2004, p4).

To date, and to the best of our knowledge, there has been almost no in-depth engagement with emotions and their effects in energy research. As outlined above, most existing work on energy vulnerability that identifies emotional experiences adopts what Scheer (2012) terms a "linear model of emotional processes" (p206) in which emotions are always *re*actions or triggered responses to particular stimuli that 'happen to' people, rather than forms of 'active doing'. In a very recent paper, Sahakian and Bertho (2018) suggest that a core reason for this has been the "lack of meaning around energy usage, in a symbolic sense" (p1). Pierce and Paulos (2010) make a similar argument that "modern energy such as electricity has overwhelmingly been designed and interacted with as totally *undifferentiated*; the energy used for lighting, heating, and charging a mobile are, from the perspective of use, essentially the same" (p3). In short, energy has, to date, been an object that emotions have 'slid over' rather than 'stuck' to (Ahmed 2004).

Sahakian and Bertho (2018) seek to overcome this neglect of emotions in energy research by turning to the social practices and norms that energy is part of as the key objects that have the potential to provoke emotional expressions and responses. Whilst emotions have not normally been a focus of social practice inspired accounts of energy demand (Hampton 2017), Sahakian and Bertho (2018) show how emotions can be central to both stabilizing and changing practices. For example, they show how attempts to juggle multiple practices and to meet particular standards and expectations around domestic chores can provoke

tension and anxiety, thus stabilizing normative practices. Alternatively, they argue that 'letting go' of particular standards can be key to their re-negotiation and to practice change. Connecting such insights to energy vulnerability, Walker (2013) notes that most of the literature on social practice theory has focussed on the 'successful' and 'skilled' performance of various practices. By contrast, an inability to secure adequate energy services will likely result in 'failed' performances of practices. It can thus be seen how emotions can serve to pressurise households to engage in and perform practices in particular ways, and how the failure of such performances may elicit significant emotional and material consequences.

Whilst emotions are just surfacing within energy research, one area where relational and practice-based understandings of emotion have been employed, and with some relevance to energy vulnerability, is within the housing market (Christie et al, 2008; Smith et al 2006). This body of work is instructive in the way that it seeks to unpack the diversity of emotions that are important in shaping housing economies. As Christie et al (2008) put it:

> "markets are saturated with all kinds of emotions, sometimes calm and predictable, sometimes wild and out of control, sometimes dependent on aggressive behaviour, but also infused with humour, warmth, affection even love…a study of markets needs to attend to a broad 'sociality of emotions': to how a wide range of feelings circulate and generate effects." (Christie et al 2008, p2297)

Building on this work, Jorgensen (2016) argues that "markets come to work or perform…due to the interweaving of economic agency, emotions and materials" (p101). In short, emotions are increasingly recognised as central not only to how the housing, or indeed any other, market is experienced, but also to how decisions are made within it. Such an understanding demands a re-evaluation of economic decision-making, that refuses to continue externalising and 'framing out' emotions (cf. Callon 1998) and instead reflects how consumers – whether of houses or any other product – make decisions in actual rather than modelled economies (Smith et al 2006). Aune et al (2016) have begun this task in relation to Norwegian consumers' understandings of the electricity market by showing that, rather than calculating in a narrowly rational and economic sense, consumers instead engage in what Cochoy (2008) calls 'qualculation' - "quality based rational judgement…[that] does not preclude calculation; rather, it is an extension, a more comprehensive rationality that may include calculation" (Aune et al 2016, p349).

In summary, what we are arguing here is that there is a stark contrast between the currently dominant positivist ways in which fuel poverty is conceived and these emerging ways of understanding emotions as central to performances of and decision-making within practices-that-use-energy. Current definitions of and approaches to addressing fuel poverty rest upon the silencing and 'framing out' (Callon 1998; Aune et al 2016) of emotions from how people make decisions about energy, and on the 'purification' (Shove 2017) of energy efficiency from the wider dynamics of everyday life. Emerging work in energy vulnerability has begun to excavate emotional reactions to energy vulnerability but, by maintaining a linear model of emotional processes, it has thus far provided only a partial picture and not yet gone far enough in demonstrating how emotions function to shape and potentially even generate energy vulnerability. In the rest of this paper, and for the first time, we therefore

seek to begin this process by employing a relational, practice-based approach to emotions to show how, as well as shaping experiences of energy vulnerability, emotions can also produce it and frustrate attempts to address it.

3. Methods

The research consisted of 16 semi-structured interviews with tenants of Broadland Housing Association, a social housing provider based in the city of Norwich, UK which manages around 5,000 properties. Interviewees were recruited on the basis that (i) they were perceived to be at risk of some kind of energy vulnerability and (ii) they had received some kind of energy related intervention in the past. These interventions included both technical forms of intervention (e.g. new boilers, solar panels, air source heat pumps) and more 'social' forms (e.g. energy advice, support as a new tenant, tenancy support). Interviewees were offered either a £25 shopping voucher or equivalent contribution to their energy bills to compensate for their time. All but one of the interviews were held in the tenant's homes, in four cases there was more than one resident present. Tenancy support staff were also present at four of the interviews. The interviews themselves were semi-structured covering a range of topics including awareness of energy use; managing energy use; energy efficiency; financial aspects of energy; and energy interventions. Basic demographic, socio-economic and household energy efficiency information was gathered via a short post-interview questionnaire and is summarised in Table 1.

Pseudonym	Age	Income	Rationing of heating	Payment Method	EPC Rating
Colin	60-69	Under 10K	Yes	PPM	B
Barbara	30-39	Under 10K	Yes	PPM	D
Susan	Unknown	Unknown	Yes	PPM	Unknown
Tony	30-39	Under 10K	Yes	PPM	Unknown
Janet and Steve	40-49	Under 10K	Yes	PPM	C
Michael	Unknown	Under 10K	No - but accruing debt	PPM	C
Lucy	20-29	Under 10K	Yes	DD	C
Glenda	60-69	10 - 15K	No	DD	C
Fran	Unknown	Unknown	Yes	PPM	C
Annette and Pete	20-29	10 - 15K	No	DD	B
Paulette	30-39	10 - 15K	No	PPM	D
Rob	30-39	Under 10K	Yes	Quarterly	Unknown
Sybil and Arthur	60-69	£15 - 20K	No	DD	Unknown
Francis	60-69	£15 - 20K	No	Quarterly	C
Fiona and Bob	60-69	Over £25K	No	DD	B

Table 1: Summary of Interviewees

Table 1 also shows that many of our interviewees lived in relatively energy efficient homes. For example, only two interviewees were identified as living in properties with an Energy Performance Certificate (EPC) rating below C, which is the UK Government's stated objective to address fuel poverty. Indeed, across all of Broadland's properties, the average Standard Assessment Procedure (SAP) rating has been calculated as 71.1 (equivalent to an EPC rating of C) which is well above the average rating of 64.5 (EPC 'D') and marginally above the social housing average of 70.5 (BEIS 2018a). Nonetheless, many of those interviewed who were living in properties with a C rating or above, were still found to be rationing their heating or cutting back on their energy use in other potentially detrimental

ways. Although not statistically significant, this does add to the growing body of work that argues that the LIHC measure of fuel poverty, along with the focus on energy efficiency as the primary solution to fuel poverty, means that energy deprivation in social housing gets overlooked (National Housing Federation, 2016; Curl and Kearns, 2017; Webb et al 2016).

A further 10 interviews were carried out with members of staff from the housing association. These targeted those in specifically energy related roles, but also sought to ensure that a diversity of perspectives from across the organisation – both in terms of function and in terms of distance from the 'frontline' – was obtained. Again, these were semi-structured and covered energy issues, fuel poverty as well as more general questions on housing associations and their aims and responsibilities. Finally, a focus group was held with 8 members of the tenancy support team who deal with some of the most severe cases of energy vulnerability in order to discuss and compare their experiences of working with tenants.

All of the interviews and the focus group were recorded and transcribed before being analysed using NVivo software. Initial descriptive coding categories were drawn from the fuel poverty literature and topics which had structured the interviews themselves. This provided the basis for a further iterative process of conceptual coding and theme development which led to the analysis presented below (Cope, 2003). Full ethical approval for the research was provided by the University of East Anglia's General Research Ethics Committee. In accordance with this, all interviewees' names have been anonymised using pseudonyms. The authors have permission to share anonymised interview data with other relevant research projects and can do so on request.

4. The emotional engagements of energy vulnerability

The interviews we conducted with energy vulnerable social housing tenants were strongly marked by discussions of emotion. Even when discussing relatively mundane and everyday practices, interviewees regularly reflected on or mentioned these as shaped by particular emotions. Three broad forms of emotional relationship were identified as significant across the interviews, each with distinct consequences for experiences of and attempts to address energy vulnerability: i) worry, fear and control; ii) relations of care; and iii) embarrassment, trust and gratitude.

4.1 Worry, fear and control

The most common emotional experience described by interviewees in relation to their energy use was one of worry. As the following quotations demonstrate, whether electricity or gas, worry was strongly attached to energy use precisely because it was deemed essential for the successful performance of certain practices:

> "I put it [the heating] on and do worry about the money side!" (Francis)

> "I probably worry about that [energy] more than the food… I worry about it and I have to prioritise it. I would go, which I have done, I would go two weeks without petrol in my car to make sure that I've got enough money to put on that electric key

if it runs out… Because if it runs out, I need it, you know. And I've got two children, I can't be here with no electric and no heating." (Barbara)

Energy use for essential practices was thus strongly marked by worry over its financial implications and how they may impact on other aspects of everyday life. The most prevalent and immediate effect of such worry was to make interviewees acutely aware of and vigilant over their energy use. As Paulette described, the ability to pay for energy was central to whether or not she felt she could engage in particular energy-using practices:

"Oh God…obviously if I've got my money coming then that's all right, I can do all my washing over the next three days because I know in two days' time I can top it up and stuff like that, whereas [if] it's like, "I've got two weeks until I've got my money coming", my washing starts to pile up and stuff like that!" (Paulette)

When money was not available, certain practices had to be at least temporarily foregone. As is now all too commonly described in the energy vulnerability literature (Chard and Walker, 2017; Middlemiss and Gillard, 2015), our interviewees demonstrated many different ways in which they had adapted or limited their performance of practices to cut back on energy use in order to save money across a wide such as: spatial and temporal rationing of heating; using cold or only minimal hot water; heating hot water with a kettle rather than relying on boilers or immersion heaters; avoiding the use of ovens in favour of microwaves; batch cooking; making do with light from televisions; wearing additional layers; wrapping up in duvets; going out to visit friends to warm up etc. These different 'ways of coping' (Hall 2016) clearly demonstrate how, for many of our interviewees, energy was a very pressing and worrying concern. The underlying cause of worry about energy was fear over an unexpectedly large bill (Butler and Sherriff, 2017) which, for many of our interviewees, would have meant getting into, or growing levels of, debt:

"It can be a worry, I don't lose sleep but it's there, it is there. It's like a little niggle, "oh heck", I get scared to open the [bill]. Sometimes I'll put it down for a day before I'll open it." (Francis)

"I have been in debt, my car was on a loan but I've paid that off and I am completely debt free so I don't ever want to get into that situation, I don't want my little one to have to go through seeing me have all that worry, so I always do try and prioritise bills over anything else. That's why we don't really tend to go anywhere either, I'm not using diesel in the car, we tend to stay here!" (Paulette)

By becoming attached to energy bills and debt (real or imagined) in this way, fear had two important effects on experiences of energy vulnerability. First, and as already shown it acted to make many of our interviewees prioritise paying their energy bills and compromise on other day to day practices. Second, it commonly resulted in interviewees wanting to go on 'the key', to have a Pre-Payment Meter (PPM) installed to remove the fear of a large bill and associated debt:

"Why people go on the key is they're worried of getting in big debt." (Susan)

PPMs were thus favoured over other, cheaper forms of billing, in an attempt to reduce fear and worry by increasing day-to-day control over energy expenditure:

> "Well, it's not a worry in regards to every four months we're going to get an electric bill, because we don't have to worry about that, because we won't, you know? Because we're on pay as you go." (Janet and Steve)

> Interviewer: "Do you ever worry about your energy bills?
> Paulette: No, because I can keep an eye on them here. I don't worry so much now, where obviously the previous place that I was in, it was a standing order you paid every month and you never knew what it was, I worried more then. So, I don't worry so much now because I can watch it the whole time if I want to." (Paulette)

So strong was the desire for the additional control that PPMs were perceived to provide, that one interviewee had intentionally got into a small amount of debt in order to have a PPM installed for free and avoid the installation fee. Whilst some tenants wrongly believed that PPMs were cheaper, others knew that they were more expensive, but still preferred them despite the higher energy costs because the ability that PPMs provided to pay smaller amounts more frequently that made them into important objects to help both control energy expenditure and manage fear and worry.

Our data suggested that the preference for PPMs – which is well recognised amongst those on low incomes (e.g. Ofgem 2017) is driven by a desire for control in response to the fear and worry that uncertainty around energy costs can cause. Yet for some interviewees they were not universally successful in achieving this. In some cases, by making energy expenditure a more immediate and pressing concern, PPMs actually seemed to increase daily worry. Barbara, for example, described how she was 'constantly worrying' about whether or not she could afford to put money on to her meter, and that if she could not do so she would end up going into "my emergency". Similarly, Susan, argued that being on a monthly, fixed rate tariff was less worrying than a PPM because you didn't have to worry about being cut off:

> "I've scraped around to get the money because the electric's popped [gone off], and that is quite nice, to know that [on a monthly tariff] you've got electric and it's not going to pop." (Susan)

In cases such as Susan's, where PPMs were avoided, interviewees generally relied on confidence in their own levels of financial literacy as their preferred means of managing both their energy costs and emotions. Lucy, for example, explained how she had managed the worry she had previously experienced over high energy bills by switching providers and taking advantage of the financial benefits of a fixed rate tariff:

> "I'm quite good with money, I know what's coming and what's going out, so I don't worry about that, especially now that I've switched energy providers and now with Scottish Power and my energy bills have been cut by just over half, now I worry less." (Lucy)

Similarly, although in a much worse financial situation, Rob demonstrated how his financial literacy and ability to deal with energy companies, developed through experience of chronic debt problems helped him, for some of the time at least, to reduce the worry attached to debt:

> "I've been in debt now for quite a number of years. So, you kind of get used to it, because obviously you do get a lot of letters coming through threatening, and they are threatening letters. "We'll do this, we'll do that. This is a formal notice blah, blah, blah. We'll get the bailiffs." They love the bailiffs. But you kind of get used to it after a standard period of time, so I do worry, and I don't worry. I sometimes get depressed and it gets me down a little bit. When you're bombarded with letter after letter, it just mounts up. But, I don't worry about it. Most of the time I'll ring the company and I'll explain this is the situation, "This is what I can afford to give you. If it's not good enough then you'll have to take it through the courts"." (Rob)

In summary, the most common emotional engagements expressed by the interviewees in our study were worry and fear. Fear of large energy bills and associated debt problems generated high levels of worry about their energy use and expenditure. This had two core effects: i) to make them forego particular everyday practices and cut back on energy use in sometimes drastic ways and ii) for most, to try and increase control over expenditure by having a PPM installed even if this risked increasing energy costs and thus exacerbating the initial conditions of vulnerability. Whilst the preference for PPMs as a device of control is well known in policy field (e.g. BEIS 2017) the fact that it is often driven by a strong emotional relation to energy bills or debt is not acknowledged. Whilst PPMs were key objects to help manage expenditure and emotions for some interviewees, however, they were not always successful as they also served to make energy costs a more immediate and pressing concern. Tenancy support officers also mentioned cases where the fear of high bills drove sustained rationing of energy even when tenants could afford to spend more on energy. Those who were on low incomes but did not feel the need for PPMs to provide control appeared to have higher levels of confidence in their financial literacy and in some cases experiences of financial hardship which meant the implications and processes of getting into financial difficulty were better understood.

4.2 Relations of care
Middlemiss and Gillard (2015) identify 'social relations' as a key aspect of energy vulnerability that serves, variously, to impede or empower agency. Specifically, they identified two ways in which social relations impacted on the lived experience of energy vulnerability. First, by shaping what adult householders consider to be negotiable or essentially daily practices, and second, by providing an occasional source of financial support between family members. In this section we reinforce and further extend these findings, by identifying four key ways that relations of care were significant to shaping energy vulnerability for interviewees in our study: i) by generating additional energy use; ii) by providing various forms of help and support; iii) by causing significant challenges when relations breakdown; and iv) through their absence, by contributing to social isolation and self-disconnection.

First, there were many examples across our interviews that supported Middlemiss and Gillard's (2015) observation that "social relations within the home had a substantial impact on both household priorities and on what was and was not considered negotiable" (p151). On numerous occasions interviews noted how they often felt they had to use additional energy to express care for others that they wouldn't necessarily have used in the absence of such care relations. For example:

> "It's too expensive but again I've got to keep heating the room, like I said especially the baby's here, or my grandsons are here, that's why I have to have heating on in the room, but it just goes on for an hour and then goes off again." (Janet and Steve)

> "when [my daughter is] here, then I will [have the heating on], if she's not here then I'll just grin and bear it and see if I can keep it down as much as I can….If it was just me, it would be a different story but I won't let my little one live in a cold, because I've been there already, I don't feel that's fair on her." (Paulette)

As these quotations show, using additional energy to express care was particularly apparent in relation to children and grand-children, but other examples included turning heating on for visitors or even using energy to care for pets:

> **"**If it was just me, I'd probably have it [the heating] switched off during the night but at her [my cat's] age, she can't keep herself warm" (Glenda)

Whilst some might dismiss using energy to care for pets (cf. Strengers et al 2016) as unnecessary and frivolous, particularly for those in energy vulnerable situations, as we argue later, the worst cases of energy vulnerability we found were among those who had no apparent relations of care, and thus the ability to express care for pets is perhaps a key way to avoid social isolation and loneliness. Tenancy support officers suggested it was fairly common to find cases where care for pets was prioritised over self-care.

Second, however, relations of care served in other instances to provide help and support, whether through advice, financial assistance or somewhere warm to go, to help interviewees cope with particular problems. There were many instances in our interviews, for example, of interviewees either providing or receiving advice from friends on e.g. how to save energy at home – such as by avoiding the use of tumble-dryers or having a smart meter installed, or how to reduce their bills such as through switching provider. Similarly, several interviewees mentioned actively visiting friends in order to get out of their own cold home:

> "I would go out…to my friend's or a public place where it was nice and warm, so I'd spend less time at home sitting down in a cold flat, having to put the heating on, so I'd go out of my way to go round other people's places, so I'd have the heat from there and socialise." (Lucy)

Several interviewees also mentioned either borrowing from or lending to family members – both parents and grown-up children – or from friends to help pay bills or top up PPMs:

"Sometimes I have borrowed money for gas or electric. Sometimes food. I don't like asking people for money" (Tony)

"I have one friend who is very, very important…. This man was an engineer. Working in the same factory [as me] … I call him and say I don't have any money and he says, 'Don't worry, 30 minutes you go to your bank you've got money'. He puts money in the bank for me." (Michael)

"Oil has gone up such a lot because my friend was looking at it, her son said 'you need to buy it today Mum because it's going to go up tomorrow' and to be honest, we scraped the money together so she could get it and the next day you just saw it, they all had gone up, you know?" (Susan)

In these instances, relations of care acted as a resource, providing a support network for those in energy vulnerable circumstances helping them to cope with particularly acute situations. As Tony notes above, however, and as we discuss further in the next section, this was often a last resort as it often caused embarrassment and damaged pride.

The third way that relations of care had significant effects in shaping energy vulnerability was when they broke down. Montgomerie and Tepe-Belfrage (2017) note that debt and financial hardship is "a major factor contributing to family breakdown, or dissolution of the household [and that] …the breakdown of families and households only compounds financial fragility" (p660). In both Barbara and Michael's cases, the breakdown of relationships had served to both reduce their household income as well as increase their relative expenditure as this was no longer shared between partners. For Michael, he also became responsible for dropping his younger children at school, a journey that involved two buses, and thus made it significantly harder for him to find work. For Fran, her husband's death and the associated loss of his disability benefits and her carer's allowance, meant she suddenly found herself with considerably less income. She also struggled to negotiate a lower monthly tariff with her energy company and was forced to get into debt in order to have a PPM installed for free. In her words "I think I got in a bit of a muddle when I first started, because I weren't used to having bills" (Fran). In these situations, therefore, the failure or breakdown of social relations, and the loss of the support and knowledge network that goes with them, served to exacerbate energy vulnerability, further compounding both its financial and emotional challenges.

Fourth, and finally, the worst instances of energy vulnerability we observed were found in situations where interviewees reported having no or very few relations of care. In such situations of social isolation, interviewees neither asked for nor received help from either their personal support networks or from Broadland housing, and these were the only occasions where we observed the complete self-disconnection of central heating. In Colin's case, for example, he notes that:

"I don't ever speak, well I don't see no-one…I don't put lights on, no…the only thing what's going on now is the fridge…and the telly, because if I didn't have that I'd go loco" (Colin)

Barbara also noted that the breakdown of her family initially left her feeling as if she had no one to talk to:

> "My family then broke down and I am the only person in my whole entire family who lives in a council house and I'm the only person who's single and got two children, so it was a big thing for me that I didn't feel that I had anyone to talk to." (Barbara)

In these cases, as well as making the emotional burden of energy vulnerability harder to cope with, social isolation also made situations seem more hopeless, with little chance of receiving help or support.

This section has outlined four core ways in which relations of care acted to shape energy vulnerability. Unlike worry, care is not an emotion that has not been given much consideration in the fuel poverty literature, despite a growing interest in care amongst social scientists (c.f. Lawson 2008). Our brief exploration here suggests that practices of (non) caring can be highly significant in shaping the way in energy is consumed and the coping strategies that are available. Relations of care can act as a resource to help people cope with energy vulnerability, but can also serve as an obligation, exacerbating vulnerability by generating more energy use and expenditure. The breakdown and absence of care relationships also had material consequences for people's experiences of and ability to cope with energy vulnerability leading to the most severe cases of energy deprivation.

4.3 Embarrassment, trust and gratitude

Sections 4.1 and 4.2 focussed on how emotions shape experiences and ways of coping with energy vulnerability. In this section we focus on a distinct set of emotional relations that operate to either help or hinder efforts to ameliorate energy vulnerability. Here, analysis revealed three particular emotions of particular significance: i) embarrassment; ii) trust; and iii) gratitude.

It is now widely accepted that there is a significant amount of stigma attached to those living in fuel poverty (Royston et al, 2014) and to poverty more generally (Walker 2014; Lister 2015). In our interviews, as within this wider literature, this stigma was expressed as embarrassment or shame. As Barbara explained, these feelings of embarrassment prevented interviewees from inviting others round to their homes, thus increasing potential social isolation:

> "I don't have anyone come round. I don't have friends over...No-one. I don't think I've had a friend round since about three years...I don't like the condensation and that is a big thing for me. It's embarrassing. I get embarrassed when I pull out in the mornings and see that you cannot see through the windows." (Barbara)

In addition to feeling embarrassed by damp and condensation in their homes, interviewees also noted that embarrassment and damage to self-esteem, also prevented them from asking for help, whether from family and friends, or from institutions like Broadland Housing:

> "I think it's hard to put your hands up and say: 'I need help!'" (Susan)

For several our interviewees, even a few weeks or months delay in asking for help could contribute significantly to often rapidly deteriorating circumstances. In Tony's case, for example, he had got into debt that was being recouped through his PPM. He reached a point where he felt that the proportion of debt being deducted made it uneconomical to keep topping up his gas and thus completely self-disconnected for several months. At no point in this process did Tony ask for help and indeed he was only identified by Broadland as a result of a dispute with a neighbour. Once Broadland did identify him, they were able to help him claim some backdated benefits, to have some debts written-off and others consolidated. Had Broadland been able to identify and help him earlier, however, his situation could have been improved much more quickly and easily.

Even after energy vulnerable tenants have been identified, however, Broadland and other help agencies must still work hard, often for long periods, to overcome their embarrassment and gradually build-up relations of trust.

> "It was a relief when they put me in touch with [the Tenancy Support Office] and then when [she] came round… we sort of had meeting after meeting…I think I broke down a few times to you, didn't I? It was sort of like she was getting a picture about me, but I did open up about it and I started talking." (Barbara)

As Barbara states, for example, building these relations of trust can demand multiple emotionally charged meetings as part of the process of getting a full 'picture' and thus being able to provide necessary help and support. The need for work to build trust was also acknowledged by Broadland staff who recognised not only that they were effective 'strangers' who were asking people to share often quite personal, embarrassing details about themselves, but also that tenants themselves may initially be wary of their motives:

> "You're asking someone to actually divulge information with a complete stranger. We explain we're tenancy support…we're not the rent officer…we are there to offer support, but even with that, they still see you as somebody in authority, bureaucracy, whatever…you've got to chip that away and that takes ages." (Tenancy Support Officer)

This initial wariness and lack of trust in Broadland staff, also extended to a more generally expressed lack of trust in energy companies and the energy market as a meaningful way of easing energy affordability pressures. A common theme in the interviews was that it wasn't worth changing supplier because all energy suppliers were perceived as essentially the same:

> Fran:　　　　"I've often had people ring me up, 'Well we'll guarantee you this rate for so long.' But they all go up in the end, and half the time I'm just, 'Really, can I be arsed? No, I'll stay as I am.'
> Interviewer:　Is that just an effort thing then?
> Fran:　　　　No, because I think [switching supplier]'s quite easy to do now, but in my eyes, I just think you're all about the same." (Fran)

"I just can't see the point of swap change, swap change, swap change, keep trying to find the best deal… they're all basically the same, they're all in it for the same reasons." (Annette and Pete)

Even in situations where interviewees had changed supplier to take advantage of cheaper tariffs, they often later felt let down when prices were raised:

"When I first switched to [supplier named], I was hyping them up so much, saying 'oh wow, this is absolutely brilliant', and all that sort of stuff, but obviously since they've whacked their charges up, I'm like 'nah'." (Paulette)

One potential reason for this general lack of trust in institutions such as energy companies and Broadland relates to interviewees' prior experiences with them or with similar outside help agencies. Here, tenants frequently described interactions where they had not been listened to or taken seriously, had been passed between multiple teams and departments without ever getting an answer, and had essentially struggled to receive help even when they had tried to ask for it.

"They have a switchboard, you then have to phone up and say that and then they say, 'We'll put it through to our site manager' and then they put it through to the guy who has to come out and do it and it's just like …There's never a, 'there's your customer number'." (Annette and Pete)

"When he [my husband] passed away I rang them and explained that there wouldn't be nowhere near as much energy used [but] they wouldn't let me put it [the direct debit] down. In fact, they wanted to put it up if anything. Because they were like, 'No because you could get in a muddle'. 'No, I won't get in a muddle, I'm trying to explain'. But they wouldn't have it." (Fran)

"Working with [Tenancy Support Officer]…she's made calls on my behalf and I think they listen to other people more than they do you, because if I phone up and say, "I'm having problems," they basically say, "Well tough, we need paying," but if [she] phones up and says, "Oh, she's having issues," they're really nice to her." (Barbara)

As these quotations show, many of our interviewees had learnt, often from bitter experience, that institutions did not always necessarily listen to or trust them. If trust is understood as an emotional practice, that must be repeatedly performed and sustained (Flores and Solomon 1998), it is therefore perhaps unsurprising that they were not always willing to trust these same institutions.

The flipside of this general wariness and lack of trust is that where interviewees had received help and support they often expressed considerable gratitude, even if this was sometimes potentially misplaced. Several interviewees, for example, spoke extremely highly of Broadland and their staff with respect to how much they cared (cf. Wainwright and Marandet 2018) for their tenants and properties. Individual Tenancy Support Officers were also mentioned by several interviewees for taking the time to meet face-to-face in order to carefully work through problems, make multiple phone calls on tenants' behalf, and help

find solutions such as claiming missed benefits, applying for various support and discounts, and getting debts written off or consolidated. In these cases, such gratitude was often hard-earned by Tenancy Support Officers. More worryingly, however, several interviewees expressed gratitude to their energy suppliers for giving them small rebates or benefits to which they were entitled, such as the Warm Homes Discount, by way of loyalty and an unwillingness to switch to potentially cheaper suppliers:

> Interviewer: "Is there a reason why you've not switched?
> Colin: I've never really bothered, I mean they've been quite good to me as you know…they gave me a little bit [back]" (Colin)
>
> Michael: "It's good because this company I got, I've been with them three years. I don't have anything to say to them…sometimes they give me money back. Now they give me 2 weeks or 4 weeks…So my support worker went online because I have been with this company for three years I got 140 pounds
> Interviewer: Ah the Warm Homes Discount?
> Michael: Yes, they give me the voucher. Sometimes they give me five pounds in a cheque." (Michael)

Given the evident challenges surrounding trust with energy vulnerable customers, it is therefore especially important that energy companies and other institutions are themselves transparent and trustworthy and, for example, that state benefits are clearly presented and distributed as such to avoid misplaced loyalty.

This section has outlined a number of ways in which emotions worked to prevent energy vulnerable households from receiving help and support. From initial embarrassment related to the stigma associated with fuel poverty, to problems with establishing and maintaining trust in support agencies and energy companies, it should, we hope, be clear that understanding the emotional aspects of energy vulnerability has a key role to play in ensuring it is effectively addressed. Whilst questions of stigma have begun to be addressed in other areas of energy studies such as energy efficiency (Reid et al, 2015) there is clearly more scope to explore its relationship to fuel poverty.

5. Conclusions

This paper has sought to address an important gap in fuel poverty research, the hitherto overlooked role that role that emotions play in producing situations of energy vulnerability, and that in some respects this is indicative of a broader neglect of the emotional in energy studies. Drawing on practice-based accounts of emotions, we have demonstrated how emotions play important roles in shaping the relations between households, other actors and other elements of energy systems (such as bills, PPMs etc), and that this role is not insignificant in shaping how energy related routines and practices unfold.

In terms of the work that emotions 'do' we can identify three overarching themes. First, they play a significant role in shaping heating regimes, and to a lesser extent, other energy related practices. Fear, anxiety, worry and care can all play a role in determining the spatial

and temporal patterns of consumption. Second, we see that emotions play an important role in shaping the kinds of support that is received by those who are struggling to secure adequate energy services. Fear, embarrassment and stigma can stand between a tenant and the possibility of support, whether from, 'official' sources (housing associations, Citizens Advice, energy companies etc) or from family or social networks. Our research shows that at the very least, the existence of relations of care allows some households to ameliorate the worst conditions of energy deprivation. Third, emotional relations clearly shape engagement with the consumer energy market. In this sense, we make a small additional contribution to the body of work which has demonstrated that the emotional and the economic are often entwined (Christie et al, 2008; Zelizer, 2005). The role that trust plays in energy market participation has been recognised by the UK energy regulator (Ofgem, 2016), however this relates only to trust in suppliers. The role that worry plays in preventing switching is also noted as significant. However, these emotional engagements are not foregrounded, and the role that other emotions might play in energy market transactions is overlooked, with energy consumers primarily envisaged to be motivated by price and requiring better information in order to participate in the market. Furthermore, as we have illustrated, attention to emotions also disrupts the dominant framing of non-switchers as 'inactive' in relation to their engagement with energy. Instead, we find that experiences of energy vulnerability can be highly emotional, turning energy and its cost implications into a near constant concern that demands high levels of attention and action.

Attending to the emotional engagements of energy consumers therefore requires a rethinking of the relations between households and energy. First, it suggests that notions of energy engagement need to be developed beyond a narrow, economistic focus on consumer markets. As others have argued (Chilvers and Longhurst, 2016; Chilvers et al 2018), publics engage with energy in multiple sites and spaces, to which would add that the nature of relationships to and engagements with energy are also multiple. At the very least, attending to such diversity, in this case tracing the emotional engagements, provides new perspectives on hitherto stubborn policy issues, such as underwhelming rates of supplier switching.

Second, foregrounding emotions acts as counterweight to the technicalisation of fuel poverty as outlined in section 2.1, and which consequently shapes much of the policy intervention. This is not to deny the value of energy efficiency interventions, only to observe that an increasing body of work suggests that such programmes themselves cannot solve energy deprivation on their own (Baker et al, 2018). The subjective experiences of energy vulnerability can therefore be used to inform how interventions are delivered. Agencies such as housing associations need to recognise that trust between them and their tenants is a two-way relation and nurture this where possible. For example, with hindsight it is clear that the interviews we conducted served themselves to create a particular kind of safe space in which interviewees felt able to acknowledge the various different emotions bound up with their experiences of energy consumption in a way which is not necessarily common. Creating more, similar spaces to help tenants express and share their concerns so that they realise they are not alone in experiencing the problem may help to reduce stigma of asking for help. Similarly, working to improve the energy and financial literacy of tenants – for example through community energy cafes (Martiskainen et al 2018) - might also help to reduce their fear and worry, giving them more confidence and explaining what kinds of help

can be accessed if energy costs do become problematic. However, whilst these kinds of intervention might make some difference in some cases, it is clear that households and social landlords lack the agency to address this problem on their own.

There is some sign that policymakers have begun to recognise the fact that fuel poverty is a more complex and multi-dimensional problem. For example, the role of non-energy debt has generally been under-acknowledged as a driver of fuel poverty, although there are signs this may be changing (BEIS, 2017). This suggests a need to move towards a broader repertoire of policy tools, particularly those which address the underlying problems of low incomes. Serious debate relating to the reform of the income side policies (Warm Homes Discount, Winter Fuel Payments) would be a good starting point. More broadly, discussions around fuel poverty need to be linked to the debate around minimum income standards and the extent to which households on low incomes fall below these (Davis et al, 2018). As our evidence suggests, such households on low incomes will continue to struggle to secure energy services even when living in energy efficient properties, whereas those who don't will likely experience more severe cases of deprivation.

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