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Original research article

Rethinking energy demand governance: Exploring impact beyond ‘energy’ policy

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ABSTRACT

The challenges of climate change and energy security, along with problems of fuel poverty and energy justice bring imperatives to create transitions in energy demand. Academic research and theory have begun to highlight the ways that government policies, strategies, and processes across wide-ranging areas of policy, from health to work and the economy, shape everyday practices with significant implications for energy demand. This brings focus on the role of governance in shaping energy demand far beyond what might traditionally be characterised as ‘energy’ policy. Situating these ideas in terms of relational geographical concepts of governance, this paper analyses qualitative interview data with actors involved in governing along with documentary material, to highlight four different ways in which non-energy related governance can have important implications for energy issues. The central contribution of the paper is to set out a distinctive analytic framework for making visible ‘non-energy’ policy impacts, which might otherwise be obscured within analysis. The article concludes reflecting on the implications of the analysis for rethinking the governance of energy demand to meet contemporary challenges.

1. Introduction

The burgeoning field of energy geographies has seen increasing engagement with the spatial dimensions of energy issues, with many articles reflecting wider trends in geographical thought towards the application and development of relational concepts of space (e.g. [1–4]). At the same time, analyses of governance have equally come to question the conceptualisation of space and spatial concepts such as scale, again moving toward relational approaches [5]. Such analyses highlight the ways that ‘space’ is an actively constituted category, rather than something that is pre-given, fixed, and singular, and direct thinking towards more critical engagement with the social constructions of space that often underlay analyses [6]. This paper seeks to engage with such relational approaches in order to develop a distinctive approach to analysis of energy demand governance. Using an empirical case study, the article advances an alternative approach toward the analysis of energy governance processes that are often treated in more static terms, such as notions of policy implementation across scales and policy impact.

Where there is a growing literature on global energy governance, which encompasses issues of energy demand, such as access to energy [7], in general issues of demand governance have been neglected both

in research and policy [8]. Additionally, many existing studies of governance tend to reproduce the categories and structures of government (e.g. between policy areas). The focus in research, as might be expected, has frequently been on areas of government that pertain in some clear or direct way to energy, such as departments and institutions with particular roles in energy infrastructure like solar PV or transport [9]. Where there is examination of wider processes (such as austerity) and non-energy policies, these tend to be treated as context, rather than a key factor in shaping energy systems and related energy issues [10]. Indeed, Cox et al. [10] identify this as a significant gap in the energy governance literature, highlighting the lack of research that examines the impacts of non-energy policy on energy systems *in an explicit way*, and arguing that this ‘makes the energy effects of non-energy policy invisible and hard to challenge’ (pp. 5).

In this context, relational approaches to understanding the social world and social action have begun to highlight how energy demand issues and energy needs are constituted in domains of governance far beyond what might be conceived as energy policy. Research that emphasises the complex relationships between materials and meanings in the constitution of social practices, has highlighted the importance of focusing not on energy *per se* but on what energy is used for, or how energy needs are made [11,12]. This directs us to think about how

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energy demand is in part a reflection of how governments shape objectives, investments and ways of providing and working across many different policy domains [12]. Aspects of existing studies begin to show how policies across multiple areas of governance, from health to economic policy, have implications for shaping everyday life with consequences for energy demand and energy issues (e.g. [13,14]).

For example, Hand et al. [13] show how government campaigns related to health influenced the construction of particular conceptions of cleanliness that formed part of the process of making-up daily showering as a widely performed practice. While Butler et al. [14] have shown how government policies encouraging flexible labour and working practices intersected with personal lives to shape long-term mobilities and the constitution of ‘lives lived at a distance’ (see also [15]). These analyses and others (e.g. see [16,17]) are suggestive of the influence of policy but also highlight how notions of implementation and impact, along with frequently embedded assumptions of cause and effect, are often illusory. The outcomes they depict were difficult to predict and not connected in straightforward linear ways to processes of policy making [11].

By examining policy and governance only in terms of the categories, classifications, and distinctions of existing government institutions, analysis can obscure these non-linear outcomes and wider forms of influence. This requires, then, a different approach to conceptualizing governance; what is needed are concepts that can recognize the inevitability and importance of policy and governed ‘interventions’ in practice, without ascribing a linear straight-forward notion of how such processes operate. Exploring wider governance agendas from a relational perspective allows for otherwise invisible impacts on energy issues to be brought into view and understood in terms of their interconnection with other social, environmental, and economic issues. This paper makes a core contribution to addressing this important gap within the existing literature on energy governance. It does so by presenting a novel analytic framework for examining the ways in which governance and policy, beyond energy policy, has implications for energy needs and issues, as well as the social and material possibilities for transitions.

The framework has been developed from empirical research on a specific area of UK policy; namely welfare and employment policy, selected as both a historically important area of UK governance, and a fast moving politically contentious area of contemporary policy, that is broadly seen as unrelated to energy systems.

Two categories of influence are identified and set out through the framework as a focus for analysis. These concern, first, *direct forms of influence* through; the impact of specific policies on energy needs and issues; and the implications of wider governance goals and cross-departmental agendas for energy demand. Second, they relate to *broad forms of influence* through; the impact of policies in shaping long-term trajectories of social and material change that affect what is possible or not within energy policy, as well as constituting needs for energy; and the implications of framing and agenda-setting in different areas of governance that shape what is conceived as possible in terms of energy policy and transitions.

The paper uses examples from research on welfare and employment policy to show how these ways of analysing governance in an area unrelated to energy, reveal and open up insight into the broader impacts of policy on energy systems and issues. The country case study approach adopted here allows for a level of detail important in understanding the implications of governance processes, as well as recognising the contingent and highly contextual nature of policy [8]. However, the analytic framework developed from the analysis and its implications for researching energy demand governance have strong potential to be applied to multiple other contexts beyond the current case.

2. Research methods and analysis

The data for this paper stems from a four-year (2015–2018) project examining the impacts of welfare policy on energy demand (in the UK) consisting of three interlinked work packages. First, a detailed analysis of key documentary materials developed by, or related to, the Department of Work and Pensions (DWP), and the Department of Business, Energy and Industrial Strategy (BEIS – formerly the Department of Energy and Climate Change), was conducted, along with a review of literature and documents relating to the historical development of welfare and employment policy in the UK. Documents analysed included parliamentary speeches, political party election manifestos, reports, strategy documents, presentations, academic literature, and government department websites. The documents selected included those predating the start of the research project (January 2015) spanning back to the early 1980s but focused primarily on the time period since 2010 when a Conservative-Liberal Democratic Coalition Government was elected, and later a majority Conservative Government (elected mid-2015), and which saw the beginnings of major welfare reform. Due to the significant policy reforms currently occurring in the UK welfare policy landscape, this analysis is ongoing.

A second work package centres on in-depth interviews with key national stakeholders involved in various ways in shaping public debate, policy-making, and/or policy implementation in both energy and welfare policy areas ($n = 21$). This included members of relevant policy teams across government departments, as well as policy stakeholders outside of government and those in positions of responsibility with regards to policy delivery (see Table 1 for a breakdown of the interviewees). Interviews were conducted from September 2015 to July 2016 and lasted between 1 and 3 h. For ethical purposes, the names of interviewees and their organisations have been withheld, and instead generic identifiers are used.

The final work package includes in-depth semi-structured interviews of local-level stakeholders, including representatives of relevant organisations, NGOs, and local government ($n = 20$) and biographical interviews ($n = 20$) with people directly affected by welfare and employment policies, in two UK locations. However, the analysis presented in this paper is based on the first (that is the policy documents analysis) and second (that is the interviews with national stakeholders) phases only.

The analysis method used was based on what has been termed ‘bricolage’ analysis, which entails the free interplay of a number of different analytic techniques [18]. For the research presented here, this involved applying qualitative interpretive analytical approaches in order to examine the content of documents, from which analytic narratives were created depicting impacts and implications for practices and energy demand issues. The interviews were analysed primarily using thematic analytic techniques, involving coding the data by selecting extracts from across the interviews relevant to particular themes and issues. However, narrative and discursive forms of analysis were also utilised to examine dominant framings and problematisations (e.g. see Section 4.2.2). In all cases, analytical lines of inquiry developed were both theoretically informed (from for example, governance, relational geographies, and practice literature) and empirically informed, that is from the words used within the documents and/or interviews

Table 1
Number of interviewees per type of organisation.

Organisation Type	Interviewee total numbers
Government	6
Non-Governmental Organisation/Charity	5
National Agencies	6
Energy Industry	2
Academic	2

(see [19,18]).

In the following, the UK policy context that forms the focus of the empirical examples is briefly described before moving to present analysis that illuminates core ways in which governance beyond energy has implications for energy demand issues, the constitution of energy needs, and the socio-material possibilities for transitions.

3. Welfare and energy policy in the UK context

The UK welfare and employment policy area is under the domain of the Department of Work and Pensions (DWP). Central thematic concerns in this area are related to pensions and ageing, poverty and social justice, employment, and welfare policy and reform. Since the 2010 and 2015 general elections, DWP has implemented rapid and somewhat controversial major reforms in this policy area principally focused on delivering cuts and changes to welfare provision for all working age people in receipt of welfare assistance.

Such reforms encompass: the imposition of work coaches to assist in advising working-age welfare recipients in addressing perceived individual deficits (in for example, their skills or work experience); new punitive sanctions for those who are deemed to contravene welfare regulations (e.g. missing an appointment with your work coach), including the partial and total withholding of their entitlements; new fit for work assessments (Work Capability Assessments) for those in receipt of disability benefits (including those with physical disabilities, mental health and wellbeing problems, and those with chronic conditions); a shift from the Disability Living Allowance to the Personal Independence Payments, which has effectively entailed cuts to some disability benefits; changes to housing benefits including the Under-Occupancy-Charge (known as the “bedroom tax” or “spare room subsidy”), whereby if a home is considered too large for the occupant(s) then their social housing entitlement is reduced; and the introduction of Universal Credit, which encompasses the streamlining of multiple benefits into one single payment and changes for many people in the way the payment is received (for example, shifting to housing benefits being paid directly to the claimant rather than the landlord, and shifting from weekly to monthly payments).

All of this makes contemporary welfare and employment policy a fast changing and politically contentious area of policy that provides scope for examining the impacts of policy change as they unfold, and raises important questions about how such reforms may intersect with and impact on energy demand policy agendas. Welfare and employment policy also has a long history as a core part of governance arrangements in the UK. With its roots in the post war reform periods of the late 19th and early 20th Centuries [34], it is a policy area that has been important to the configuration of contemporary life. This offers potential as an empirical case, then, for looking at both current policy reform but also taking in wider historical changes and governance over time.

Concurrent to the transformations in welfare and employment policies, over the last several years there have also been some important developments in energy policy agendas specifically related to energy demand. For example, the UK’s Climate Change Act (2008) [20] aims to reduce greenhouse gas emissions by 80% (relative to 1990 levels) by

2050. As part of this, there is a need to actively reduce energy demand, with some estimates suggesting a 50% reduction in energy demand relative to levels in 2011 is necessary to facilitate the effective delivery of carbon emissions reduction targets. A second key energy demand policy agenda relates to reducing energy vulnerabilities through decreasing the number of those suffering from fuel poverty. It is here that we find existing linkages between DWP and the department responsible for energy policy (formerly the Department of Energy and Climate Change DECC and now the Department of Business, Energy and Industrial Strategy BEIS).

DWP delivers the Winter Fuel Payment (a non means-tested payment of between £100–£300 given to all UK citizens older than 63 or in receipt of a State pension or other social security benefits) and Cold Weather Payments (a payment given to those in receipt of certain benefits if the average temperature in their area is recorded as, or forecasted to be, zero degrees Celsius or below for 7 consecutive days). Both payments form a part of fuel poverty policy, although DWP generally views it as a type of benefit rather than an energy policy *per se*. Further links have been created between DWP and BEIS with recent changes that have been made to the definition of fuel poverty in England.

Until 2016, those in England were defined as being fuel poor if they needed to spend more than 10% of their income on energy bills. Under this definition a core policy aim was established to eradicate fuel poverty by 2016. Subsequently, this definition has been critiqued and replaced with a new Low Income High Cost (LIHC) measure, whereby a household is deemed as being fuel poor if they have a lower than average income and higher than average fuel costs [21]. The change in the definition has been critiqued for only concentrating on those who are deemed as being most in need, and for changing the problematisation of fuel poverty away ‘from a condition that should and can be eradicated (as in the previous fuel poverty target), to a condition that can at best be alleviated’ [22:2]). This change in definition has led to new interactions between DWP and BEIS, as DWP has been centrally involved in data matching to enable BEIS to identify and target people now defined as in fuel poverty under the LIHC measure.

The remainder of the paper is dedicated to setting out a novel analytic approach to understanding the impacts of non-energy policy on energy demand issues, taking UK welfare and employment policy as an exemplar case.

4. Analysing governance beyond energy policy

The analysis identifies and characterises four different ways in which areas of governance outside of energy policy have implications and impacts on energy demand issues and problems. Using data from the analysis of UK welfare and employment policy, in many senses this discussion highlights four questions that could be asked of multiple other policy areas constitutive of different spatial contexts (see Table 2). These questions are not on their own normative; rather they are agnostic on whether the implications might be judged to be positive or negative, fortuitous or problematic, for addressing energy issues and developing transitions. However, normative assertions are likely to be possible through analysis derived from these core questions, and some

Table 2
Analytic framework for examining inter-governance.

	Analytic areas	Key analytic questions
Direct forms of influence	Policies	What impact are particular policies and departmental governance processes having for energy issues?
	Wider agendas	Which wider agendas of governance that have implications for energy issues are (partly) constituted through this area of governance and how is their relationality to energy understood?
Broader forms of influence	Long-term trajectories	What are the longer-term trajectories – both historically and future-oriented – set in train by this area of governance with implications for energy challenges?
	Framing and agenda setting	How do issues of framing and agenda setting within diverse governance areas delimit or open up possibilities for approaches to address energy issues?

of these judgements are included in the analytic examples from welfare and employment policy that follow.

4.1. Direct forms of influence

This first section focuses on what might be characterised as direct forms of impact in as much as they pertain to examining particular policies or government agendas for their implications with regards to energy issues (i.e. energy vulnerability and demand reduction), energy needs, and transition processes.

4.1.1. Policies

The direct forms of influence on energy issues arising from UK welfare and employment policies are best exemplified in relation to the constitution of energy vulnerabilities. Contemporary welfare reforms in the UK have seen major cuts to benefits and state support, targeted specifically at working age people, while at the same time pensions and older age benefits, including those related to fuel poverty that the Department for Work and Pensions (DWP) delivers (e.g. winter fuel payments) have been protected. These cuts have been highlighted in our research as severely affecting the stability of household budgets, in particular disproportionately affecting disabled people and other key vulnerable groups reliant on support, as exemplified in the quotes below.

“I’ve worked out how much Universal Credit is going to affect disabled people and some people are going to be hugely worse off and yet they’re saying there’s no impact” (Interviewee 2, National Agency)

“Obviously, the big change over to universal benefit, the caps, the reduction, the below inflation level increases in benefit. These are all things that we are aware of and it’s probably our frontline staff who are more acutely aware of those who are dealing with fuel debt. A lot of the work we’ve been doing with food banks over the last year mean that we’re aware of what’s happened to people when they’ve had benefit sanctions where they’ve had changes in payments and just how fragile household budgets are and just how fragile some household economies are when they can’t take even a two-week delay in receiving benefits. They have nothing to fall back on.” (Interviewee 3, NGO/Charity)

Contemporary research highlights how a combination of low incomes and higher energy bills can increase fuel poverty among some groups, such as disabled people that are reliant on benefits, and families with disabled children [23]. At the same time, their circumstances often escape official statistics, which do not take into account higher energy needs related to disabilities (e.g. using energy intensive equipment or having to keep warmer temperatures in the home). Despite efforts to better target the fuel poor that led to a development of a new “low income, high cost” measure of fuel poverty [24], much fuel poverty assistance continues to be focused on older people, who have historically been regarded as particularly vulnerable to fuel poverty and have been the target of such policies.

These groups are, as noted, also protected from contemporary welfare reforms. This is not to say fuel poverty policies targeted at older people, such as the winter fuel payment, should be abolished or that older people do not experience fuel poverty (indeed they remain a significant proportion of those likely to be in fuel poverty even under new definitions), but that only by looking across welfare and energy policy is it possible to see how policy in one area might be exacerbating and affecting issues in another area. In this case relating to energy vulnerabilities, broadly, and in particular, to working age people being disproportionately affected by welfare cuts at the same time as having very little recourse to find support for specific energy poverty issues.

This is supported by recent research that has highlighted how fuel poverty is often linked to and exacerbated by welfare and employment

reforms, which have important impacts on incomes and thus households’ ability to meet their energy needs [25,23]. Middlemiss [22] highlights how the current narrow framing of fuel poverty as a technical issue of energy efficiency, distinct from poverty itself, obfuscates these impacts, thus excluding alternative solutions. Moves to consider energy poverty as extending beyond heat or cooling to other essential energy uses, such as light, mobility, communication, or travel, has highlighted further issues in the omission of these forms of energy usage in fuel poverty policy and campaigning [26–28]. All of this suggests that the focus on older people and on heating results in other vulnerable groups being excluded from considerations and energy policy support.

This might be thought of as simply an issue of policy catching up with new definitions and research understandings in terms of targeting those most at risk of fuel poverty. It is certainly the case that a great deal of work is being undertaken to identify fuel poor groups and target them using the LIHC measure. However, these outcomes in terms of policy are not purely a product of changing understandings or the rate at which policy can change and evolve with new insights and research. Rather, policy in both of these areas – welfare and energy – is in part related to wider political sensitivities, for example concerning electoral patterns. In the quote below, the participant refers to political sensitivities associated with particular kinds of benefits cuts (e.g. to older population benefits).

“I suppose the target group that it mainly hits i.e. old people, is a politically significant group as well. The fact that we’re dealing with elderly people who are at risk of fuel poverty and seem to have a lot of sway politically because they all vote. As we know when it comes out ... and it came out when our Secretary of State resigned, one of the things that he talked about was the political clout of the silver voters. That was quite interesting. So yeah, it is a very political area. I haven’t worked in an area... that’s been so political I think as fuel poverty”. (Interviewee 20, Government)

These political dimensions of policy making mean that there is less flexibility in the ways these policies might be changed in line with contemporary research and thinking on energy policy.

Going beyond these forms of impact related to welfare cuts, employment policies designed to get people into work are associated with a greater prevalence of zero hours contracts and increasingly insecure working conditions. This changing nature of work further shapes poverty, with consequences for exacerbating vulnerabilities to energy deprivation. The participant quoted below highlights how insecure work can affect things like peoples’ travel expenditure and their ability to plan around their working patterns for their energy needs at home.

“I think changes in employment patterns generally is quite interesting. I think we saw changes with the recession to the structure of a lot of people’s employment. Unemployment didn’t fall that much after 2008 but we’ve seen a lot more people in insecure work, zero hours contracts, it’s been in the news a lot that there’s been a growth in temporary work and agency work, and particularly self-employment as [colleague] said. That might mean that if people are in less secure employment they end up travelling further maybe. It might mean working patterns over the working day are changing, or over the week.” (Interviewee 11, National Agency)

This highlights a need to better understand the complex interactions between welfare and employment policies and energy vulnerabilities, and to consider impacts on access to a variety of energy services, beyond space heating. This first form of influence from areas outside of energy policy shows how different areas of policy – in this case welfare policy – can have important direct implications for energy issues; here relating to energy vulnerabilities and fuel poverty.

4.1.2. Wider agendas

Forms of influence relating to wider agendas can be illustrated in this case with reference to the particular role that welfare policy in the

UK has played in agendas of digitalisation. Digitalisation represents a long-term agenda within UK government more broadly, with direct aims to accelerate the pace and development of the so-called information society. One facet of this wider cross-departmental government agenda to advance the ‘information society’ involves the digitalisation of the welfare system, generating need for digital access for 22 million people that use the system in some way (e.g. through pensions, child benefit, unemployment support) [29]. Indeed, the Department for Work and Pensions has a specific section named DWP Digital that exists to support and develop digitalisation in this sector:

We have recently launched over a dozen digital services, including the Universal Credit, Carers and Pensions services. Last year, we delivered 7229 iterations and changes into production. 70% of all paper correspondence is now digitalised across DWP, including incoming post... We’re combining design-thinking and digital technology with our social purpose to create exciting and innovative products and services, which improve outcomes for 22 million people [29].

This, in turn, contributes to a growing need for and use of computing technologies and the Internet, with associated requirements for energy use. The electricity consumption associated with ICTs (Information and Communication Technologies) has rapidly increased since the introduction of personal computers in the 1980s and the Internet in the mid 1990s [30]. Despite significant improvements in energy efficiency of ICTs and related electronic appliances, the associated energy consumption keeps on increasing, as technologies get incorporated into the fabric of social life, reshaping social practices and making room for more ICT appliances [31].

While, on the one hand, digital technologies have been identified as representing an increasing proportion of household energy demand, and as the fastest growing area of global energy demand, on the other hand, they are actively promoted by multiple departments as part of wider agendas.

“you’ve got all these Job Centres and part of a strategy for reducing that is to consolidate Job Centres and move everything online” (Interviewee 9, Government)

Though there might be possibilities within digital expansion for reduction of energy needs, as this quote intimates, for example as needs for travel and buildings may be reduced, these are not overtly or systematically considered as part of this long-standing cross-governmental agenda. This means that there is, at present, limited potential for understanding the longer-term implications in terms of energy demand and environmental impacts. Previous studies suggest that whilst information and communication technologies have the potential for reducing energy needs, they may equally considerably increase energy consumption, depending on wider economic and political conditions [30,32].

Whilst the use of such technologies may reduce the need of physical co-presence, the overall impacts may be complex and lead to other kinds of energy-using consumption and practices. As an example, the possibility for tele-working may in fact encourage increases in car travel, as flexibility enabled by such technologies may lead to people choosing to work from home during morning rush hours and drive to their workplaces when traffic is reduced, rather than adopting other travel alternatives [32]. In the context of the digitalisation of the welfare system, the impacts may involve increased energy use in the home, associated with the purchase and use of necessary equipment, or increased transport needs for those who may require to access computers at libraries or job centres, or to seek assistance from various support organisations.

Indeed, our research revealed problems experienced by some groups with accessing digital services and managing their benefits online. In addition to shaping the constitution of energy needs relating to wider trajectories of digitalisation, these processes can thus also contribute to

increasing energy vulnerabilities, as these quotes from our research exemplify:

“We’ve got computers here that they can use, and with the Universal Credit you sign onto something called Universal Job Match and that’s something where you’re expected to log on and log your job searches. Everything’s sort of moved to an online system, which is all well and good if everyone can sit at home with their computer and stuff. But I’d say 95% of the young people I work with don’t have a computer, don’t have the internet. So it’s quite difficult for them. Obviously there are places you can go and get out and about, but also if you’re suffering from mental health as about 50% of our clients do, often they don’t really feel like going out and leaving the house and having to go sit in a library and do their job search. So it’s just not a very inclusive system, it’s clearly thought up by someone who has no idea about what it’s like to live like that at all.” (Interviewee 22, Local Agency).

“There’s a lot of things happening at the moment in terms of looking at the development of the internet as the government’s chosen method of doing public service stuff. And of course the growing use of the internet in the commercial world. And the fact that a lot of our older population is still going to actually get the idea that having lived for six or seven decades on this planet vaguely successfully without the internet, they need to actually learn how to use it. So we’ve got to walk the tightrope between shouting for the paper alternative or something of that kind and simultaneously trying to help our older population to come to terms with buying a computer, managing it, learning to use it and not being frightened of it.” (Interviewee 15, NGO)

By looking beyond energy policy it is possible to bring into view such wider processes of governance that have important implications for the constitution of energy needs and energy vulnerabilities, but which otherwise might not be considered or obscured. Research has highlighted the complex relationships between technologies and various social practices, which are intimately related and co-constitutive of each other, with impacts on the temporal and spatial ordering of social life and implications for energy use (e.g. [33]). Exploring wider governance agendas from a relational perspective that considers energy allows for some of those otherwise invisible impacts to be highlighted.

4.2. Broader forms of influence

This second order of impacts expands thinking out to consider broader ways in which areas of policy beyond energy policy *per se* have implications for energy issues, the constitution of energy needs, and the possibilities for energy transitions or responses to energy-related problems.

4.2.1. Long-term trajectories

First, in moving beyond more direct forms of influence, we can give attention to the role of policy and governance more broadly in shaping longer-term trajectories of change, as opposed to more immediate impacts from particular policy agendas. Within welfare and employment policy specifically a key example concerns the role of policies over the longer term in shaping the nature of UK housing, with implications both good and bad for energy needs and for the nature of current energy problems. Welfare policy has had implications for UK housing that have affected both the *material* nature of the housing stock with implications for energy needs, and *social* dimensions of housing, for example in terms of ownership trends, which have implications for possibilities within current energy policy.

The provision of housing has been a core welfare policy over time. For example, if we look at the history of social housing in the UK there was a long-term trend of government building and providing housing, with substantial numbers of council housing built from the early 1900s

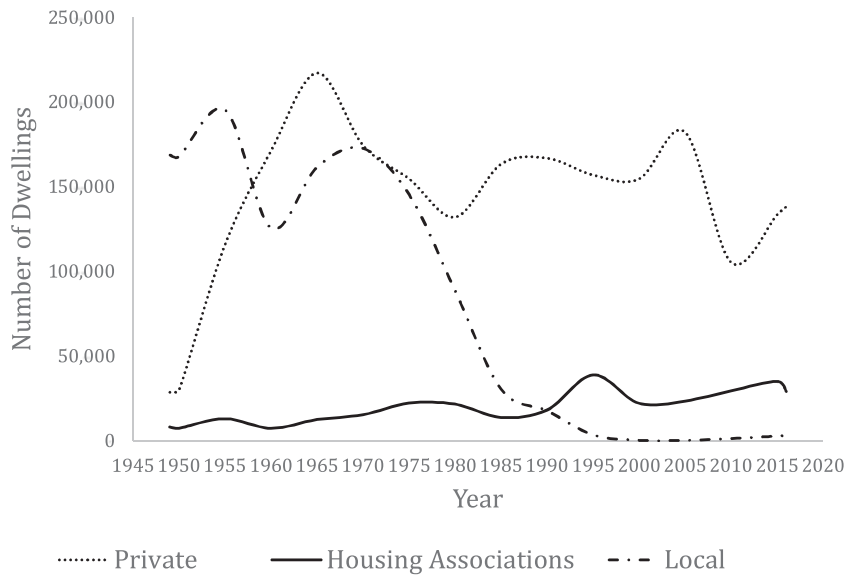


Fig. 1. Trends for permanent dwellings completed by tenure in the United Kingdom.
Adapted from DCLG [53].

[34,35]. These were, in general, smaller properties designed to accommodate families in relatively dense spaces. This means that in the UK we have a legacy of smaller attached, terraced housing, rather than the larger detached multi-room and bathroom homes that characterize other countries housing development, such as in North America and other parts of Europe. Sources put the average footprint for a house in the UK at approximately 65–80 m², while in North America the average house footprint is thought to be upwards of 200 m² (e.g. [36]). In some senses, then, these trends in government welfare policy have been fortuitous for energy, generating lower needs than might otherwise have been the case.

Contemporary trends, however, have seen moves away from government development to private development along with the selling off of social housing [37]. While in the 1950s local authorities still built the vast majority of new homes, by the 1980s trends had reversed with private enterprise delivering most new homes, as social housing development dwindled. Indeed, the Department for Communities and Local Government (DCLG) statistics show local authority development decreasing from over 160,000 new homes built in 1950 to close to zero by 2013, with private development taking its place (See Fig. 1). At the same time, much existing social housing transferred into private ownership. The Right to Buy schemes, initiated in the 1970s but not really taking hold until the 1980s, contributed significantly toward this trend [35].

Over 1.87 million homes have been sold under the Right to Buy schemes since 1980 [38]. Recent policy changes following the 2010 and 2015 elections have seen new measures to incentivise the Right to Buy through more generous discounts and reductions in the qualifying tenancy period, as well as extensions of the scheme to Housing Associations [35]. These contemporary trends towards higher rates of private ownership, and in particular owner occupied housing, as well as shifts toward private enterprise housing construction, create particular challenges for energy policy.

On the one hand private sector development, though meeting contemporary efficiency standards, tends to favour multi-bathroom, detached and semi-detached housing, and sees trends in the material nature of houses changing. For example, there has been a notable shift toward more detached properties (as of 2012 17% of the housing market), with implications for energy use as they typically have greater external wall areas and more windows [39]. This is perhaps made even more pertinent when trends toward demolition schemes are also considered for their role in changing the nature of UK housing (see [40] for analysis of energy benefits of retrofit versus demolition). On the other

hand, changes in ownership of housing toward much higher rates of owner occupied (see [39]) have made tackling the now largest part of the housing sector politically sensitive, as described in this quote from one of our interviewees.

You have things like the private rented sector regulations already but if you were to do something similar in the homeowner sector, that could be quite controversial and take up quite a lot of political will to say, if you introduced a requirement by 2020, whenever a home was purchased, it has to be a Band E¹ or above. So it would be maybe the seller or buyer's responsibility to bring it up to that standard. So that is something that could be feasible to do in regulation but would be extremely unpopular and would probably pick up quite a lot of media attention so might not be the politically easiest way of achieving carbon savings. (Interviewee 19, Government)

The private rented sector has recently been targeted with some regulatory measures as a first step toward improving energy efficiency standards, and reducing costs for rented properties. However, this has not been extended to owner-occupied properties, which, as the quote above indicates, are considered much more politically contentious. Previous attempts to regulate in this sector of the housing market have been abandoned as politically untenable revealing problematic tensions in the trends associated with contemporary housing and the aims of energy policy relating to demand reduction.

4.2.2. Framing and agenda setting

For this second form of broader impact, attention is focused on the ways that framing of issues and particular kinds of problematisation delimit the possibilities for policy approaches and transitions that have implications for energy. Precisely because energy is so embedded in almost all aspects of daily lives, approaches to transition that focus on individual choice have been heavily critiqued (e.g. [41,42]). In this context, academic analyses have highlighted the need for transitions in daily practices that consider the interrelations between materials, meanings, and knowledge, and address more fundamental patterns of social action, trajectories, and trends [12].

These arguments suggest the need for alternative solutions and approaches to addressing issues of demand to those currently proposed

¹ 'Band E' refers to UK's energy performance certification for housing stock. It includes an energy efficiency and environmental impact (CO₂) rating. The bands range from A–G, where A is the best and G the worst.

and propagated within government and beyond, such as behaviour change programmes, energy efficiency, and capacity projections in transport [43–45]. However, such proposals rub up against dominant framings of policy issues and particular political rationalities that limit the space for some approaches while favouring others [46]. In this last example, we show how framing can constitute an important consideration for understanding the ways that non-energy policies might be implicated in defining the possibilities for energy transitions.

The Department for Work and Pensions (DWP) plays a role in relation with many other government departments in constituting how social problems are framed, understood and ultimately what becomes possible in terms of how issues are addressed. To look at the issue of poverty as an example, and examine how it is problematised within government policy; poverty is positioned as a problem of worklessness and, as with many other areas of policy, this is further problematised as an issue of individual deficits; in abilities, training, willingness, or skills, for example. This framing of poverty has a long history and is not only propagated (or challenged) through government but also through media and a whole range of governing institutions and discourses that shape or delimit what's possible (or desirable) within policy.

"I suppose politically... that they've gradually over time managed to paint people on welfare as scroungers yet most of the people on welfare are actually working hard, or else they have a very legitimate reason for not working but they've managed to paint this thing... over a long period of time". (Interviewee 2, National Agency)

This particular framing creates space for policies and strategies like work capability assessments, sanctions, work coaches, and the wider 'work programme' that is targeted at addressing individual deficits in skills, ability, or willingness.

'Long-term unemployment is damaging to individuals and communities, it affects mental and physical health, and holds back economic growth... We have introduced the Work Programme to replace a range of employment schemes, pilots and projects. It provides personalised support for claimants who need more help to find and stay in work. We will pay back to work service providers according to the results they achieve. Their contracts will include incentives to support those who need more help to get into work than others, such as the long-term unemployed or disabled people'. [47]

However, problems of welfare dependency could equally be framed to include other structural and systemic issues, including access to work and workplaces, and issues associated with mobilities and travelling or moving to areas where workplaces are situated. To take this further, applying a lens of low carbon transition, these issues could be configured in such a way as to challenge existing arrangements that contribute toward needs for mobilities for work and other energy related trends associated with demand created through current working practices.

Research highlights how increasing levels of travel are related to work [48], high job densities (e.g. in city centres or industrial estates) contribute toward increasing the distances that are travelled for work [49], and how contemporary trends towards home working have questionable outcomes for energy use; increasing domestic energy use even while it may reduce energy use for commuting [45]. If we took the step to combine the challenges of reducing energy use associated with work with the issues of worklessness and poverty from welfare policy, thinking about or framing these issues in ways that extend beyond individual deficits, we might reimagine very different possibilities for policy. For example, policies that more fundamentally challenge current structures pertaining to working patterns and forms of organisation that re-create high dependency on energy (e.g. in terms of mobilities) and/or constitute challenges for accessing work.

In this regard, through their analysis of how practice theory might

differently position arguments for policy change, Spurling and McMeekin [45] make an argument for the creation of 'new spaces' that could cater for new forms of interlocking between practices. They cite the examples of Liverpool Central Library and Kings Cross Hub as spaces which could facilitate abilities to work 'from home' in the same venue. In essence one space becomes the working environment for multiple different employers. Though neither Kings Cross Hub nor Liverpool Central Library are currently configured with sustainability ends in mind or even the reconfiguration of work, they provide indications of what might be possible if we sought to reconfigure interlocking practices of working, commuting, eating, and socialising to be radically different and ultimately less energy intensive [45].

Allied with concerns about worklessness, we could imagine that such reconfigurations could be created to address issues of poverty and a whole range of other social issues. For example, by locating these new types of working environment in more dispersed ways close to where people live and perhaps even particularly in areas of deprivation and unemployment. At present, such reimaginings of work are evident in pockets of action typically associated with companies such as Google and high tech industries [50], but they could be applied to multiple forms of work and explicitly configured with sustainability, poverty, and wider issues of social participation at their core. However, this would clearly require very different problem framings beyond individualism, which fundamentally constrains what is possible or what is even in view when it comes to different policy departments' strategies.

This final example highlights how particular aspects of social life come to be problematised in ways that delimit and shape the possibilities for policy and practice as well as the possibilities for thinking very differently – across policy areas – about how to address multiple social problems in combination. This is not to suggest that the proposals set out here are the answer to problems of work and energy. Rather this is simply to show how if we think cross sectorally, it is at least possible to bring into view issues in how different departments problematise in ways that could contribute to energy transitions or limit and constrain possibilities.

5. Concluding discussion

The key contribution of this paper is to offer a distinctive framework for thinking about and analysing the governance of energy demand and, in particular, demonstrating the need to think beyond existing state categories and spatial distinctions of governance (e.g. between government departments). The problems of reproducing existing divisions within research are highlighted for the ways that they occlude or obscure aspects of governance that have important implications for the particular issue that is the subject of scrutiny. By unravelling the ways that areas of governance, beyond those of immediate interest for any field of study, have otherwise unseen implications (see Table 3), two important points of critical engagement are opened up.

First, by looking beyond energy policy we have brought into view both the expected and unexpected, negative and positive, implications of interactions between different policies. In this case, the consequence is to facilitate better understanding of how demand for energy is being constituted and how the context for energy demand governance is shaped by wider acts of governance across government and beyond. Second, looking at energy demand governance in this way leads us to observe that governing institutions are always already 'intervening', or have intervened historically, in ways that have different kinds of outcomes for energy demand (e.g. keeping it low or increasing needs) and energy issues (e.g. by shaping what is possible within energy policy). This means that new specific energy policy interventions layer on top of or interact with existing forms of 'intervention', and their impacts are constrained by what has happened before across multiple different policy areas. This amounts to a call for attentiveness to the ways that other policies, agendas, and ongoing processes of governance are likely to have implications for specifically targeted interventions to address

Table 3

Summary of the analytic examples showing how welfare and employment policy has implications for energy demand governance.

	Analytic areas	Empirical case examples
Direct forms of influence	Policies	Energy vulnerabilities and poverty are affected in direct ways by contemporary welfare and employment policies. The connections between fuel poverty and poverty more generally are not currently being addressed cross-departmentally.
	Wider agendas	There are multiple wider governance agendas with important implications for energy demand that become visible when looking at other areas of policy. Digitalisation is one such cross-governmental agenda in which welfare policy has a major role, both through generating needs for digital access and delivering digital roll out.
Broader forms of influence	Long-term trajectories	Welfare policy has both a historical and contemporary role in housing. The welfare policies associated with housing (such as social housing builds and ‘right to buy’) have major implications for energy demand governance by shaping the nature of the UK housing stock both in material and social terms.
	Framing and agenda setting	The framing of issues of poverty in particular ways has major implications for what is conceivable within energy policy. While it might be possible to create imaginative inter-departmental governance approaches to major social issues, the enactment of new ideas are heavily constrained by existing rationalities (such as individualism).

energy issues.

All of this suggests that alternative approaches to the processes of governance are needed to deliver the scale of transformation necessary needed to meet climate change targets and reach significant reductions in energy demand, as well as to address issues of energy vulnerability. One way that we might think about such alternative approaches is in terms of more ‘reflexive governance processes’ that are better able to attune to the interconnections between different policy areas [51]. Rip [52] asserts that ‘reflexive governance... must be predicated on a diagnosis of ongoing patterns and their constraints, and how to act in their context and perhaps even improve on them’ (pp. 83). This entails governance actors themselves recognising their place within the evolution of a system, as opposed to being external to it, and requires them to begin with the insight that ‘society hangs together through unintended effects, both positive and negative’ [52]. The analysis presented here offers a way into such forms of diagnosis, if not going as far to delineate a route to enabling governance change.

One observation relevant to this is that many of the participants interviewed as part of the research with roles in policy and governance do in fact reflect on the deleterious effects of policy across different areas. This suggests that diagnosis, though an important precursor to change is unlikely to be enough to entrain a route to addressing the issues raised by such insights. Though it is beyond the scope of this current paper, an important area for future analysis is to extrapolate the possibilities and challenges for developing approaches to governance that can effectively respond to this type of knowledge and understanding.

To conclude, this paper offers a distinctive focus for analysing and researching energy governance and transitions that takes a different direction compared to existing analyses of socio-technical transition processes and studies of specific energy interventions. Indeed, this suggests that behavioural and efficiency interventions in this space need to be considered in terms of the existing forms of intervention across multiple aspects of social life that they are interacting with, or layering on top, or even fighting against. Examining governance and policy more broadly extending beyond energy policy – in the ways identified in this paper – could help to identify scope for, as well as the challenges to, developing alternative approaches to governance in this space that might ultimately have greater impact in achieving the kinds of change in energy demand necessary to address contemporary issues of demand reduction and energy vulnerabilities.

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