



Poverty and Energy Demand

Abstract The starting point for this book is to explicate key conceptual interventions within the large body of existing work on energy poverty. This chapter discusses the trajectories of this research tradition from analyses focused more narrowly on notions of fuel poverty to those foregrounding issues of energy vulnerability, and through to concepts of precarity and capabilities. It examines the frontiers of analysis engaging with work that has sought to move beyond preoccupations with heat and the spatial domain of the home and advance more complex understandings of the issues. The chapter concludes setting out the key tenets of the literature and discussing how conceptualisations can be further advanced in analysis of energy poverty.

Keywords Fuel poverty · Energy poverty · Energy vulnerability · Capabilities · Precarity

INTRODUCTION

Brenda Broadman (1991) is often credited with bringing prominence to fuel poverty as a focus for academic analysis. Her work underpinned the formulation of a key definition for fuel poverty within the UK. This definition positioned fuel poverty as arising in contexts where a household spends more than 10% of their income to afford adequate domestic

energy services, particularly heat (though electricity for other energy uses such as lighting was also incorporated). An understanding of fuel poverty as related primarily to the ability of households to heat their homes to an adequate standard has since been pervasive across both academic and policy analysis (Simcock et al., 2016). In application, particularly in the UK, this focus has combined with a tendency to characterise fuel poverty as an issue experienced by older people (Day & Hitchings, 2011; Simcock et al., 2016). Such approaches to the analysis of fuel poverty have, however, been critiqued for failing to engage with lived experiences and underlying systemic causes, as well as for working from a narrow definition of the relevant energy uses to be considered (e.g. Bouzarovski & Petrova, 2015; Day et al., 2016; Gillard et al., 2017; Middlemiss & Gillard, 2015; Petrova, 2018; Simcock et al., 2016; Walker et al., 2016).

Academic debates about fuel poverty have advanced taking in the wider subfield of energy justice and introducing new concepts that offer a deeper basis for engagement with these issues (e.g. Bouzarovski & Petrova, 2015; Day & Walker, 2013; Day et al., 2016). In particular, the concepts of energy vulnerability, precarity, and capabilities have gained traction and discussion has moved on from a focus on older people, heat, and costs versus income towards consideration of the multifaceted nature of fuel poverty (e.g. Bouzarovski, 2018; Bouzarovski & Petrova, 2015; Gillard et al., 2017; Middlemiss & Gillard, 2015; Petrova, 2018; Simcock et al., 2016). These multidimensional understandings have also sought to traverse a traditional spatial focus on domestic social contexts, looking at interconnections and relationality beyond the home (Bouzarovski & Petrova, 2015; Day et al., 2016; Middlemiss et al., 2019). However, though mobilities are raised within this work as an area of energy poverty (e.g. Middlemiss et al., 2019), analyses have not yet gone as far as to connect with the burgeoning literature on transport poverty (e.g. Mattioli, 2017; Robinson & Mattioli, 2020). This literature offers important insights regarding the negative impacts of transport poverty in terms of wellbeing, hardship, and social exclusion, as well as advancing understanding of the drivers.

Scholarship building from a concern with transport poverty has also sought to make connections with the domestic energy poverty literature. Robinson and Mattioli (2020) take forward an extensive quantitative analysis of the potential within England for ‘double energy vulnerability’—a situation whereby a household is doubly vulnerable to both domestic and transport poverty. However, the analyses in this area tend to be primarily

substantive in focus engaging far less with the conceptual debates that have characterised the domestic energy poverty field.

This chapter discusses these key debates, concerns, and conceptual advances that characterise contemporary energy poverty research. In this, it brings together substantive insights from across fuel and transport poverty, conceptual concerns spanning ideas of vulnerabilities, precarity, and capabilities, and key issues that have been raised through engagement with lived experiences. Through discussion of these different contributions, I seek to advance conceptual understanding and set out an approach to energy poverty that encompasses the multiple dimensions, concerns, and spaces across this wide-ranging literature.

FROM FUEL POVERTY TO ENERGY VULNERABILITY AND PRECARIETY

Fuel poverty has gained prominence in academic research and policy since the 1980s but in recent years it has come to the fore as a prominent global issue that has been allied with problems of energy access (Bouzarovski & Petrova, 2015). Issues related to energy and poverty have come to be recognised within academic research as multifaceted phenomena that are constituted through interaction between multiple personal, social, economic, and political dimensions. Bouzarovski et al. (2021) have highlighted how energy poverty research has expanded well beyond concerns with low incomes, high energy prices, and residential energy efficiency. Instead, recent research trajectories have focused on a wide range of factors that produce *vulnerability* to energy poverty, as well as emphasising differences in lived experience across people and place (e.g. Butler & Sherriff, 2017; Gillard et al., 2017; Middlemiss & Gillard, 2015; Petrova & Simcock, 2019).

As an approach, ‘energy vulnerabilities’ have been argued to ‘help draw a distinction between energy or fuel poverty as a descriptor of a state within a certain temporal frame, on the one hand, and vulnerability as a set of conditions leading to such circumstances, on the other’ (Bouzarovski, 2018, p. 18). Indeed, Middlemiss and Gillard (2015, p. 147) have defined energy vulnerability as: ‘the likelihood of a household being subject to fuel poverty, the sensitivity of that household to fuel poverty, and the capacity that household has to adapt to changes in fuel poverty’. But they also highlight how this is ‘somewhat unsatisfactory’ given its failure to engage with the complexity of lived experience. They

discuss some of the critiques of ‘vulnerability’ and the linked concept of ‘resilience’. They highlight arguments concerning the tendency of these concepts to depoliticise vulnerability challenges by individualising and displacing responsibility away from the wider social and political sphere. For Middlemiss and Gillard (2015), however, this does not mean vulnerability must be abandoned altogether but, rather, that it requires recognition of dimensions of power when used.

One of the departure points for energy vulnerability research, then, is the realisation that fuel poverty is not a static condition but is better understood in terms of the factors that might cause its emergence (Bouzarovski, 2018; Day & Walker, 2013; Meyer et al., 2018; Middlemiss & Gillard, 2015). Such factors that contribute to its emergence in domestic homes have been described as: quality of dwelling fabric; tenancy relations; energy costs and supply; stability of household income; social relations in and out of the household; and ill health (Middlemiss & Gillard, 2015, p. 149). Added to this are institutional and socio-political factors that shape vulnerabilities across different geographic contexts (Bouzarovski et al., 2015; Petrova & Prodromidou, 2019; Bouzarovski et al., 2021). This positions the responses to fuel poverty as ones that involve addressing the wider underlying factors that can see people move in or out of fuel poverty across different times and spaces (Bouzarovski et al., 2021; Middlemiss & Gillard, 2015). Here a focus on precarity has been used in efforts to characterise energy poverty and deepen the concept of energy vulnerability.

In particular, Petrova (2018) has given the concept of precarity a central place in understanding the constitution of energy vulnerability. She argues that while *precariousness* is a shared condition related, for example, to a particular sector such as housing, energy *precarity* is a politically induced phenomenon that is only generated under certain circumstances. Petrova explains that the concept of precarity, widely explored in other literature outside of energy research, has roots in Bourdieu’s practice theoretical analysis and characterises people that are both vulnerable and marginalised but also transformative as a class of people in-the-making. In this sense, she highlights how the concept of precarity overcomes some of the critiques associated with ‘vulnerability’ and the related concept of resilience by positioning it as a politically induced phenomenon that also affords ‘agency for political change and emancipation’ (2018, p. 19). As such Petrova (2018, p. 20) argues that ‘energy precarity’ can be used as:

a double signifier that calls attention to the performative experience of multiple vulnerabilities in the home, while illuminating the political and institutional embeddedness of fuel poverty.

In this way, she proposes energy precarity as a complementary concept to those of fuel poverty and energy vulnerability suggesting that it expands ‘understandings of energy deprivation beyond the home, and [links] them with the institutional and political circumstances that may im/mobilise particular socio-demographic groups to act on the issue’ (Petrova, 2018, p. 20). Here, attention is brought onto the conditioning of precarity through wider social, political, and economic dynamics. For example, Petrova highlights how within the UK’s private-rented and houses in multiple occupation (HMO) sectors, a lack of strategic governance and reliance on voluntary improvements by landlords has contributed to the dominance of poorly insulated and old homes. She further argues that the short-term and transient nature of much of the occupancy of private-rented accommodation in the UK disincentivises landlords from improving housing, as well as contributing to a normalisation of energy deprivation amongst young people. Petrova explains ‘accepting the mainstream framing of poor living conditions as provisional and non-permanent made living in fuel poverty tolerable for the interviewees’ (2018, p. 26). Ultimately, Petrova shows how these socially and politically constituted trends in the UK private-rented sector shape experiences of energy deprivation.

The concepts of energy vulnerability and (following Petrova) precarity thus allow for a stronger characterisation of the variability of circumstances and processes through which experiences of energy deprivation are made manifest. Precarity, however, arguably has greater potential to move beyond the often neoliberal, individualised characterisations of energy deprivation that have tended to pervade the concept of vulnerability. Despite this, both energy vulnerability and precarity have proven useful for thinking outside of the preoccupations of particular contexts (such as domestic settings) and engaging with inequalities relating to energy use in less constrained ways, such as those dictated by frequently narrow policy definitions.

This is borne out by analyses that have specifically sought to think about energy poverty issues more expansively, moving past the conventional focus on particular energy uses (e.g. heat) and specific demographics (e.g. older people). In this vein, Simcock et al. (2016) bring

focus on non-heat related energy uses, giving emphasis to domestic *electricity* using energy services. Looking at the UK case, their analysis shows how despite inclusion of non-heat home energy uses within policy (e.g. electric appliance use), there remains a strong emphasis on heat as the main focus for policy and governance responses. They assert that there is ‘significant scope for further investigation... on how and why vulnerable households may suffer “under-consumption” in *non-heating* energy-uses, and moreover on how this impacts upon different dimensions of people’s quality of life’ (2016, p. 37).

They also highlight the need for more forward-looking analyses of energy vulnerabilities that account for wider societal changes and shifts in the nature of basic necessities, highlighting consumer electronics as an important area for research (Simcock et al., 2016). Petrova (2018) similarly emphasises the importance of examining non-heat energy services in her work on the experiences of younger people; a demographic not typically addressed by energy poverty research. She shows the heightened importance of energy services connected to information and communication technologies within the lives of younger people, highlighting the significance of looking beyond both heat and older people in energy poverty research. Beyond this, a small but important body of work has brought focus on low income and disabled people (e.g. Gillard et al., 2017; Snell et al., 2015) as groups that are inadequately recognised and addressed through existing fuel poverty policy.

The shift to look beyond the prior preoccupations of energy poverty research and policy encompassing multiple dimensions, varied energy services, and different demographic groups has been accompanied by calls to move outside a focus on the spatial context of the home. This has taken different forms with some arguing for greater attentiveness to the ways that domestic energy deprivation is negotiated and constituted beyond the confines of the home (Bouzarovski & Petrova, 2015; Petrova, 2018). For example, Petrova (2018) highlights how the young people in her study often deployed strategies of visiting others or spending time in other spaces to which they had access, like offices or libraries, to mitigate their energy deprivation. Others have led calls to look at the intersections between domestic energy poverty and transport poverty (e.g. Robinson & Mattioli, 2020), seeking to bring focus on the relevance of mobilities for energy poverty research. Here, analysis highlights the lack of research addressing the intersections between transport poverty and domestic energy poverty. Though the emergence of more complex

spatially integrated understandings offers significant potential to open-up analysis to mobilities, such integration has yet to form a focus for much empirical analysis within energy poverty research. The transport poverty literature has, however, begun to develop analyses that seek to bridge the divide, and it is to discussion of this the following section turns.

BRINGING TRANSPORT POVERTY AND MOBILITIES INTO FOCUS

As highlighted above, an important precursor to work that seeks to draw mobilities into the wider domain of energy poverty research is found in the transport poverty literature. The body of literature around transport poverty, with links to work on mobility and social exclusion (e.g. Cass et al., 2005; Currie, 2011), emerged initially largely in isolation from work on domestic energy vulnerability and fuel poverty (Robinson & Mattioli, 2020). This research tradition has long addressed issues of car access, transport affordability, costs of motoring, and vulnerability to fuel price increases, with issues of ‘forced car ownership’ shaping research agendas in this space (e.g. Currie, 2011; Currie et al., 2007; Mattioli, 2017; Mattioli et al., 2017). Analysis of socio-spatial configurations has also formed a focus bringing into view the relations between income, place of dwelling, accessibility, and vulnerability to transport poverty (e.g. Curl et al., 2011; Mattioli, 2017). However, the work in this space has rarely engaged with the conceptual debates that characterise some of the wider energy poverty literature. It has developed instead focusing on concepts of social exclusion, accessibility, and more recently justice, producing distinctive insights.

For instance, Mullen and Marsden (2016) have used a justice conceptual lens to highlight the longstanding set of processes that have favoured private car travel as the primary mode of transport within the UK as pertinent to social exclusion. They argue that mobility systems that privilege those who can access a private vehicle and afford to use it raises important justice concerns as it inhibits the welfare of those for whom it is not possible (e.g. those without economic means to support car use). This suggests the importance of examining how demands for specific forms of travel are constituted over time, something that aligns with practice-oriented thinking about mobilities (discussed in the next chapter).

Though there is little work at the intersection of domestic and transport poverty, there are some notable contributions that have sought to bridge the divide. For example, Mattioli et al. (2017) offer an important comparison of fuel poverty and transport poverty. They argue that while transport affordability problems have typically been based on an analogy with the more dominant issue of fuel poverty, important conceptual differences between the two issues can be identified. For example, they discuss research that has shown how people are more likely to prioritise transport over other energy costs (such as heating), because of their requirements for work. This is suggestive of an important recursive link between employment and economic stress related to transport that they argue has no clear parallel in the context of fuel poverty (Mattioli et al., 2017). They assert the importance of examining the interaction between different dimensions of energy poverty (i.e. between fuel and transport poverty), given the connections and differences between them that have been identified. More broadly, they emphasise how the focus in most transport poverty research has been on car-dependency, rather than looking at mobilities and a diverse range of modal forms. And finally, they reflect a need, highlighted above (Petrova, 2018; Simcock et al., 2016), to examine the ways these issues affect different demographic groups beyond the elderly, given what they assert to be an overemphasis in policy on universal measures for older people.

In other work, Robinson and Mattioli (2020) have developed an analysis to show the relatively widespread occurrence of what they term ‘double energy vulnerability’ that arises where vulnerabilities to domestic energy poverty intersect with vulnerabilities to transport poverty. Developing a high-level spatial analysis, they look at the overlaps using quantitative indicators of vulnerability to transport and domestic energy poverty. They show that as many as 6% of neighbourhoods accounting for 3 million residents have a high propensity towards double energy vulnerability (Robinson & Mattioli, 2020). Though this work offers insights into the connections between transport and fuel poverty, I argue that it is important to go further and engage with mobilities as part of a broader conceptualisation. I propose that the conceptual advances in work developing vulnerability, precarity, and capabilities approaches can provide fertile ground for this. It is to a discussion of the interventions in energy poverty research developing capabilities-based analyses that I now turn.

THE CAPABILITIES APPROACH IN ENERGY POVERTY RESEARCH

A key intervention within the energy poverty literature has been to develop and apply a capabilities-based approach to understanding energy deprivation (Day et al., 2016; Middlemiss et al., 2019). This has built on existing work to facilitate understandings of energy poverty as a complex, multifaceted phenomenon, while also bringing focus on energy services and the connections between energy and human needs. As an approach to energy poverty, it has important appeal for the potential it holds to engage with the complexities of lived experiences and the manifold intersections that shape them.

The energy capabilities approach is predicated on Sen and Nussbaum's understanding of human wellbeing as requiring certain capabilities to support opportunities for functioning (see Sen, 1999; Nussbaum, 2003, 2011; Sen & Nussbaum, 1993). They argue that the focus for societal development should be on key basic functionings for human wellbeing, such as bodily health. They maintain, however, that there are multiple capabilities, such as the ability to secure healthy food, that underpin these basic functionings, and it is these capabilities that must be the goal because functionings can be an outcome of choice. For example, a person who has the means to secure food but chooses not to eat might have the same level of functioning as a person who does not have sufficient access to food, but these are clearly not the same.

Day et al. (2016), in particular, have applied this line of theorisation about human wellbeing to energy deprivation putting forward a framework for examining energy poverty. They draw on Smith and Seward's (2009) distinction between *basic capabilities*, such as maintaining good health, having social respect or being educated, and *secondary capabilities* that underpin basic capabilities, such as washing clothes or storing and preparing food or accessing information and resources. Day et al. argue that many of these secondary capabilities often require energy in some form and relate therefore to different energy services (see Fig. 2.1 from Day et al., 2016, p. 260)

They further highlight how the energy needs required to fulfil different capabilities are shaped by particular characteristics and circumstances (e.g. whether you are young, old, disabled, healthy or ill), material factors (e.g. the type of home you live in, the local climate), and the availability of

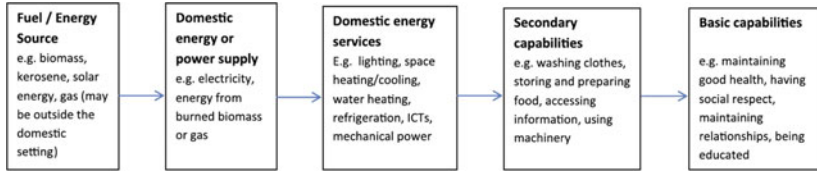


Fig. 2.1 Conceptualising the relationship between energy, services, and outcomes

energy services beyond the home (such as through wider societal infrastructure and community services). This understanding, thus, connects to ideas of energy vulnerability in denoting the characteristics, circumstances, and materials that shape experiences of energy poverty.

They add to this an explanation of how societal norms, such as those pertaining to cleanliness, shape energy service needs in terms of how they relate to the basic and secondary capabilities. For example, in the UK showering every day has become a normal expectation for most people to ensure social respect is maintained. This means that many secondary capabilities, which for Day et al. underpin basic capabilities, have variable implications for energy services and resource use depending on the specifics of place and the prevailing social norms. They arrive at a distinctive and flexible definition of energy poverty that is as follows:

an inability to realise essential capabilities as a direct or indirect result of insufficient access to affordable, reliable and safe energy services, and taking into account available reasonable alternative means of realising these capabilities. (Day et al., 2016, p. 260).

There are several implications of this alternative definition. First, it offers a multidimensional approach that is closer to understandings of energy poverty typically used in Global South contexts, which recognise the importance of energy for capabilities and wellbeing (Bouzarovski & Petrova, 2015; Day et al., 2016). It thus allows for a greater ability to perceive the complex interdependencies between energy and poverty (Bouzarovski, 2018). Second, it encompasses key assertions from energy vulnerability research by highlighting how different characteristics shape energy needs, as well as abilities to meet them. Third, it recognises the role of energy services but does not specify services giving the required

flexibility to engage with different cultural and material contexts and societal norms (Day et al., 2016).

Fourth, it offers a means of making visible ‘the effect of evolving social norms in constituting energy demand and, therefore, relative energy deprivation’ and explicitly identifying such processes as spaces of intervention for alleviation of fuel poverty (2016, p. 262). Day et al. assert that ‘energy poverty can involve not being able to engage in accepted social practices’ (ibid.) and suggest interventions designed to reduce demand for energy services might be as relevant to alleviating energy poverty as they are to sustainability. For example, it brings into view questions about how capabilities might be supported in ways other than increasing the amount of energy required (e.g. building design that incorporates cooling, rather than air conditioning), and how there can be different ways of providing services beyond an individualised focus (e.g. through community-based provision of ICT infrastructure).

Such understandings are foreshadowed in debates about ‘energy services’ as a basis for characterising energy poverty (Bouzarovski & Petrova, 2015). Here, the emphasis is similarly on the functions that energy affords and the abilities that people have for achieving those functions to a satisfactory level. Thinking in this way lends itself to consideration of the wider technologies and dynamics involved in fulfilling energy services and thus implicated in experiences of energy poverty. Bouzarovski and Petrova (2015, p. 34) highlight how ‘while studies of consumption and sustainability have often explored the ways that particular patterns of energy use are normalised via social practices and everyday routines, there has been little work on the levels of domestic energy services that households require for full participation in society’ (Bouzarovski & Petrova, 2015, p. 34). They argue that such an emphasis on required service levels that allow for opportunities to undertake actions and activities offers an important starting point for advancing global efforts to understand and address energy poverty. This suggests the importance of looking at patterns of energy use within energy poverty research, but it stops short of questioning the processes through which needs are constituted.

The capabilities approach, and related analyses, thus offer a great deal in terms of facilitating understanding of energy poverty that moves away from the modelled measures and definitions characteristic of current policy (see Chapter 4 for discussion). However, I aim to develop these conceptual ideas further by engaging with some of the wider energy

poverty literature discussed thus far, as well as some existing critical engagement (Middlemiss et al., 2019). This is addressed in the final section of this chapter.

ADVANCING AN APPROACH TO ENERGY POVERTY

A useful mechanism for explicating the expanded capabilities approach to energy poverty proposed here is to work through the ways that the conceptualisation differs from Day et al.'s (2016) intervention. In discussing key areas of difference, other concepts and analytic ideas are brought in to advance an approach to energy poverty that synthesises and solidifies major aspects of thinking in this space.

First, in a similar way to others working with wider perspectives on energy poverty, Day et al. (2016) do not explicitly use the flexibility inherent in their conceptualisation to look across to mobilities. They focus on largely domestic energy services (e.g. heating, lighting), though they do engage with forms of service provisioning beyond the home. For example, they suggest that their definition gives room for energy services provisioning, such as washing, to be outside of the home via more communal modes of delivery (Day et al., 2016). The intention here, however, and one of the appeals of this approach to defining energy poverty, is that it can take in deprivation associated with travel and mobilities, as well as those related to domestic contexts. Given that mobilities have received little attention in the debates about defining energy poverty, it seems a missed opportunity not to use the capabilities approach to further open-up the conception. For this reason too, mobilities form a focus for key parts of the empirical analysis that comes in later chapters of this book.

A second point of distinction taken forward within the conceptualisation advanced here relates to arguments that Day et al. (2016) make about the need to distinguish between capabilities that are understood as essential, and those which are not, across different contexts and places. They suggest that there might be a need to decide 'threshold levels' for some basic and secondary capabilities (2016, p. 261). In discussing how this might be achieved, they refer to the wider capabilities literature and suggest two routes to identifying essential capabilities; to work from a list of capabilities (similar to that developed by Nussbaum) or to develop understanding of essential capabilities and their relationship to energy through some form of deliberative process within particular

contexts (as advocated by Sen). Day et al. (2016) favour situated deliberation and grounded analyses of energy poverty as the best route to identifying essential capabilities.

However, while universal definitions (as developed by Nussbaum) have been challenged for lacking insight into important place-based differences, so too have relative characterisations that rely on deliberation as recommended by Sen. Indeed, this latter approach has been critiqued for obscuring relations of oppression and marginalisation that shape what people view as normal and acceptable in terms of human needs (Deneulin & McGregor, 2010; Mahali et al., 2018). Here, it is useful to reflect on Petrova's (2018) exploration of precarity as a concept that brings into view broader socio-political contexts and their implications for people's conceptions of fuel poverty.

It is possible to see how the argument that conceptions of need are shaped by socio-political conditions relates strongly to ideas of precarity that foreground the 'socio-institutional normalisation' of (energy) poverty in ways that 'immobilise' people from becoming politically active (Petrova, 2018, p. 18). In this context, while Day et al. (2016) suggest deliberation as a route to defining capabilities, I argue that such attempts to specify essential capabilities and their related energy requirements could do more to obscure connections and interrelations than they reveal. This is because, as Petrova's (2018) work demonstrates, people living without proper access to energy services to support basic capabilities do not necessarily problematise this deficit precisely because of processes of socio-political normalisation. This suggests a challenge to notions that the most fruitful way of taking forward a capabilities-based analysis of energy poverty lays in specifying capabilities and the links to energy.

For this reason, though the capabilities and energy services that are of interest for thinking about energy poverty must be discussed through analysis, I argue that it is not necessary (or perhaps desirable) to produce a comprehensive list of any sort. Indeed, I would suggest that the focus of analysis should not be on producing insight into the *range* of essential capabilities implicated in or affected by energy poverty as this would only serve to constrain and delimit the more flexible understanding of energy poverty that the capabilities framework affords. Instead, a capabilities-based approach could more fruitfully be used to facilitate an alertness to both a wide range of energy services beyond those that dominate debates *and* the interconnections between them and capabilities. Given this, in the later chapters of this book, the energy services addressed through the

analysis are in no way exhaustive and do not address all areas of need. Rather, I select examples for the insights they give into the links between capabilities and energy services and for their relevance to understanding the dynamics of energy poverty.

The third area of difference concerns the different proposals for how to approach researching and analysing energy poverty using these wider conceptualisations. Where other analyses suggest a focus on energy services, needs, or the capabilities at issue, I adopt a biographical approach (see Butler et al., 2014) that places the person and their relational context at the centre. This prevents interconnections between different forms of energy poverty from being obscured and opens-up the analysis to complexity by engaging with lived experiences. I suggest it can facilitate movement past the traditional spatial boundedness of energy poverty research and offer a route to engaging with capabilities in a grounded way without the need to specify essential needs.

A fourth and final point concerns the way the relationship between capabilities and energy services has been depicted within energy capabilities work to date. Middlemiss et al. (2019) argue that Day et al. (2016) effectively suggest a sequential relationship between domestic energy services, secondary capabilities, and basic capabilities. This, they suggest, implies that basic capabilities are in effect served by secondary capabilities and the related energy services, not the other way around. Middlemiss et al.'s (2019) intervention focuses on social relations as a basic capability, highlighting a more bidirectional relationship than this conception affords. They argue that social relations cannot be adequately characterised as either 'secondary' or 'basic' capabilities as they 'might be both an end in themselves... as well as a means by which other ends could be achieved' (Middlemiss et al., 2019, p. 229). This brings into question the value of distinguishing between secondary and basic capabilities or characterising the direction of the relationship between them and energy services.

Given this, while the existing conceptual discussions of energy capabilities and services have been characterised by frameworks and schematics that offer means for navigating the complexities inherent in energy poverty (e.g. see Bouzarovski & Petrova, 2015; Day et al., 2016), I wish to advocate a movement away from specifications of this nature instead opting to embrace the complexity and unravel it through and within empirical analysis. Again, a biographical methodology can facilitate this as suggested above, but other methodologies could be applied

with the same orientation. The important point is to maintain openness to the complexities inherent in the relations between energy services and capabilities.

This could be in the ways suggested by Middlemiss et al. (2019), but it is possible to think of other forms of complexity, such as in questioning what it means to have a capability and its relation to energy services. For example, the capability to shower can involve a 2-minute cold shower or a 20-minute hot shower—while both might be regarded as having capabilities to meet a basic need of cleanliness, the former does not achieve the same level of functioning as the latter. Understanding of self-rationing and self-disconnection also calls into question assumptions about ‘access’ to energy in terms of infrastructural provisioning, since it cannot be assumed that the capability automatically follows from availability of the service. This variability in the relations between energy services and capabilities means that it is extremely difficult—and I argue potentially not desirable—to apply either a broader top-down or a very closely specified approach to analysis of the relations between energy services and capabilities. Instead, it is possible to keep the contours of need and the *extent* to which needs are being met or not as an integral and emergent part of analysis, rather than attempting to develop and apply distinctions.

In sum, the approach to energy poverty advocated here is one that encompasses an understanding of energy in terms of *what it is for*, focusing on energy services and related capabilities. But it also extends beyond the preoccupations of capabilities and wellbeing research more generally in not seeking to provide a list of all relevant capabilities or detail specific connections to energy services. Rather, the approach is one that calls for focus on the situated and relational person and their experiences to keep complexity and interconnections in view.

CONCLUSION

This chapter has discussed some of the major contemporary contributions to conceptualising energy poverty and argued for their value in instituting an approach that can keep complexity in view. The centrality of the capabilities approach, along with the related concept of energy services, has been explicated and explored. I arrive at a characterisation of energy poverty through the lens of lived experiences that reflects a distinctive understanding of the issues, departing markedly from contemporary policy definitions. Such an understanding entails a focus on the impacts

of lack of access not just to energy but to the capabilities that energy use is implicated in, including being healthy, educated, and able to socially participate. Included in this is an ability to reflect on how issues of energy poverty are bound up not only with the point of energy use but with the materials, wider infrastructure, and social processes that shape energy services.

The understanding of energy deprivation advanced here, then, is one that affords space to different energy services bringing into view areas of interconnection and complexity in how energy use is prioritised and negotiated as part of efforts to live and fulfil basic functionings. In this, I argue it is paramount to understand energy deprivation in terms of what happens both within and beyond the home. For Day et al. (2016), such an unbounding of energy deprivation facilitates engagement with spaces beyond the home focusing on more communal forms of energy service. Elsewhere this approach has revealed how *strategies for coping* with fuel poverty often extend spatially too (Petrova, 2018). In this latter context, uses of spaces beyond the home as ways to meet needs for energy services have been cast critically. For example, Petrova (2018, p. 24) highlights how tendencies to use spaces outside of the home for warmth as a way of dealing with cold homes can contribute to ‘the intensification and normalisation of [energy] precarity’. However, despite the inherent possibilities very little research has yet moved to analysis that draws in mobilities as well. I argue, here, this opening up is afforded by approaches grounded in capabilities and precarity and could be advanced much more strongly within future analysis.

The chapter has foregrounded the relevance of combining the multifaceted approach to energy poverty encapsulated in the capabilities framework (Bouzarovski & Petrova, 2015; Day et al., 2016; Middlemiss et al., 2019) with the concerns and complexities that Petrova (2018) brings into view by mobilising precarity. Crucially, for the intentions of this book, both approaches align with and link to practice theory. However, I argue there is also much more to be gained from a deeper and more explicit engagement with practice theory in concert with these approaches. For example, fruitful avenues for analysis can be found in the ways that practice theory research brings far greater focus on how energy needs are actively constituted by policies, processes, and interventions. In the following chapter, I turn to the practice theory literature on energy demand introducing the key tenets of this work that are important for the analysis in this book.

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