Living with Energy Poverty

Perspectives from the Global North and South

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Chapter 2

Identifying Energy-Poor Households, Experiences from the Global North

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Part I

Methodological Approaches

2 Identifying Energy-Poor Households, Experiences from the Global North

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2.1 Introduction

As we will see in later chapters, understanding the wicked problem of energy poverty is not an easy undertaking. Rather, it is replete with multiple layers of complexity across numerous intersecting societal and environmental scales. Experience working on the EnergyMeasures H2020 project[1] has demonstrated how difficult it can be to engage with hard-to-reach households vulnerable to energy poverty. Notwithstanding the additional barriers to engagement, put in place during the early stages of the project to counter the impact of the COVID-19 pandemic raging at the time, reaching the most vulnerable households has always proven difficult even for those organisations working at the coalface of energy poverty.

This chapter will present findings from our experiences identifying and recruiting energy-poor households in seven participating countries (BE, BG, IE, MK, NL, PL, and UK) to the project. While all are located in Europe, the range of experiences our consortium partners faced were often very different and reflected the historical, cultural, and environmental factors specific to each country. Consequently, we critique range of approaches to identifying and measuring energy vulnerability[2], especially indicators of energy poverty and so-called supporting indicators. As is noted throughout this book, the focus on energy poverty analysis has tended to stay at the macro-, or meso-, levels while understanding contexts at the local level continue to be rather underdeveloped. In keeping with the overall theme of the book, approaches on how to appropriately identify energy-poor households are drawn from both the literature and from experiences of some practitioners active 'in the field'.

2.2 Understanding energy poverty

Energy poverty can best be understood as arising out of number of intersecting factors, including high energy prices, low household incomes, specific household energy needs (e.g., health), and the reliance on inefficient, poorly performing buildings and appliances (Bouzarovski, 2014). While one's level of income can be considered an important factor, it is by no means the defining factor. One should note that not all those who suffer from monetary poverty are necessarily energy poor. Also, not all those in energy poverty are necessarily income poor[3,4] (Palmer et al., 2008). The very wicked problem energy-poor households face is the choice of spending an above-average portion of their income on heating, lighting, cooling, cooking, and appliance use; or going without so they can afford other essentials such as food[5]. The resulting scenario many households in energy poverty face therefore is a cold (or overly hot) and uncomfortable home and reduced living standards. As Thomson et al. (2016) suggest, the consequences can have significant impacts on people's physical health and mental well-being (due to more restricted

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lifestyles and social exclusion) and can also lead to premature death related to severe seasonal weather conditions, especially in winter.

A key component of any effort to engage with energy-vulnerable households is being able to identify who is experiencing energy poverty or who might be energy insecure. Very often, shame, stigma, and indeed refusal to accept one is actually experiencing energy poverty can lead to 'geographic disparities in the risk and incidence of domestic energy deprivation' (Bouzarovski & Simcock, 2017, p. 640). As Cong et al. (2022) suggest, traditional income-based energy poverty metrics tend to minimise or ignore people's behavioural patterns, especially those energy-limiting behaviours practised in low-income households. Such behaviours often mask the real extent of the issue and instead create hidden energy poverties (e.g., see also Betto et al., 2020; Yip et al., 2020). Scholars rightly observe (e.g., Dubois, 2012, p. 107) that these difficulties in identifying those in energy poverty continue to be a 'major obstacle to an efficient implementation of fuel poverty policies. Like general policies of poverty reduction, fuel poverty policies have the specificity that the population who forms their target cannot be "found" easily'.

In addition, the multiple overlapping causes of energy poverty[6] can lead to greater challenges for practitioners when trying to accurately identify energy-poor households. Baker (2011, p. 15), for example, outlines the issue as such: '[it] is not possible to identify individual fuel poor households without obtaining information on both their income and housing circumstances'. A key, overarching objective of the EnergyMeasures project has been to engage with and assist energy-poor households, and as such, we were keen to incorporate these understandings into our planning for identification and engagement activities. Consequently, the first work package of the project concentrated on designing an in-depth, collaborative planning and preparatory work. This involved multi-stakeholder engagement to assess and improve the institutional context, while at the household level, engagements were organised to maximise the targeting of specific segments of the energy poor in each country.

As such, we were keen to explore the most appropriate methods for identifying energy-poor households that were inclusive and respectful of each householder's individual circumstances. To do this, we initiated a review of current best practice, academic discourse, and new thinking, from, for example, the European Energy Poverty Observatory (EPOV), to help us better identify those methods that would prove most effective in each of the different locations[7].

2.3 Measuring energy poverty

Thomson et al. (2017, p. 882) note that energy poverty '*is a private condition, being confined to the home, it varies over time and by place, and it is a multi-dimensional concept that is culturally sensitive*'. Therefore, measuring it is not an easy task. For those tasked with addressing energy poverty, it raises significant questions around privacy and personal dignity, and how one should approach the topic with householders. This has resulted in a tendency on the part of practitioners to rely on quantitative and geographical dataset that suggest an increased likelihood of energy poverty in what are usually already regarded as socially disadvantaged neighbourhoods. However, this approach is beginning to change with practitioners, opting for more nuanced means of identifying energy poor, for example, through a comprehensive income, energy expenditure, and property assessment of all households. This exercise provides all the data needed to measure the level of energy poverty, appreciate its severity, and to identify individual energy-poor houses for support. However, as Hills (2012, p. 70) observes this approach, when done correctly, can be '*prohibitively expensive – and intrusive – to carry out*'.

Therefore, if we acknowledge that not all households can be comprehensively assessed, then determining the number of, and which type of, households fall within established thresholds

for energy poverty would in principle require 'a detailed household and building sample survey followed by sophisticated modelling work' (Hills, 2012, p. 70). However, more detailed surveys invariably come with higher administrative burdens, as Dubois (2012, p. 108) notes, the administrative overheads associated with such precise targeting of energy-poor households 'is a necessary step but, as it is also costly, being as precise as possible is not necessarily optimal'. Hills (2012) points out that many of those working to address energy poverty directly use less complicated proxy indicators for identifying households. The rest of this chapter will provide an overview of the indicators used for understanding energy poverty along with the types of supporting indicators that can help prioritise support 'on the ground'.

2.3.1 Energy poverty indicators

The three principal methods for measuring energy poverty, according to the literature, can be summarised as (1) expenditure-based (absolute or relative energy expenditure thresholds); (2) subjective-based (self-reporting of living conditions and financial distress); and (3) needs-based (direct measurement of energy use compared to a set standard) measurements (Bouzarovski et al., 2020; Thema & Vondung, 2020). Of these, metrics based on expenditure tend to predominate[8], with relative thresholds used as proxies for energy deprivation (Waddams Price et al., 2007, p. 35). Rademaekers et al. (2014, p. 25) outline three types of expenditure-based metrics used for defining and measuring energy poverty:

i A high share of energy costs: the proportion of income spent on energy being above an established threshold, that is, those who spend too much. The Belgium energy poverty barometer for example sets its threshold for measured energy poverty (mEP) at twice the median expenditure of equivalent households (Meyer et al., 2018);
ii Low income, high costs (LIHC): amount of income after energy costs being below the established threshold, that is, high energy expenditure and/or insufficient income. Hills (2011, p. 9) for instance suggests that the LIHC threshold should be a combination of expenditure over the median level, and residual income less than official poverty line;
iii Insufficient energy spending: where absolute energy spending is below established the threshold, that is, those who self-restrain, the hidden energy poverty (hEP). The threshold set for hEP in Belgium is set at half the median expenditure of equivalent households[9] (Meyer et al., 2018).

The second, subjective approach comprises primarily on self-reporting of one's inability to heat one's home sufficiently (often described as 'consensual' data). However, Thomson and Snell (2014) suggest that such reporting more often focuses on the consequences of energy poverty, (e.g., presence of damp, mould, and arrears) rather than its causes (*e.g.*, high costs, specific demands, poorly constructed built environments, etc.) (Dunphy, 2020). However, they do agree that this approach does provide '*an insight into the perceived affordability of heating homes across the EU'* (Thomson & Snell, 2013, p. 567). While such approaches have been criticised for their subjectivity and reliance on householders' perceptions, it could be argued that this is exactly why this approach should be used.

As such, expenditure-based measures and self-reporting of energy poverty do not distinguish between those households that really need to consume energy (essentially, providing for their basic household needs) and those that do not, though this can be addressed using a needs-assessment modelling approach(e.g., see SEAI, 2018, p. 37)[10]. As Meyer et al. (2018, p. 280) argue, there are '*people feeling energy poor who cannot be detected by neither (sic) forms of*

objective measurement' (i.e., measured energy poverty mEP or hidden energy poverty hEP); therefore there is a clear need for subjective measurements of energy poverty. Fahmy et al.'s (2011, p. 4371) observation that there is little overlap in households identified as energy poor using expenditure-based, subjective-based, or needs-based measurements also supports the notion of using multiple complementary measures. For Bouzarovski et al. (2020, p. 41), '*energy poverty is a culturally sensitive, multi-dimensional concept that varies over time and by place and is thus not easily captured by a single indicator'* and accordingly they also suggest using a selection of consensual and expenditure-based indicators to be used in conjunction with each other. To meet this challenge, Sokołowski et al. (2020) propose a multidimensional energy poverty index comprising five key indicators of energy poverty. While the EU Energy Poverty Observatory (EPOV) have built on the work of Sareen et al. (2020), selecting four primary indicators of energy poverty, comprising:

1 **High share of energy expenditure in income** (2M) – those households with share of energy expenditure in income >2x the national median.
2 **Low share of energy expenditure in income** (M/2) – those households whose absolute energy expenditure is <1/2 the national median.
3 **Inability to keep home adequately warm** (Keep warm) – based on self-reported thermal discomfort.
4 **Arrears on utility bills** (Arrears) – based on households' self-reported inability to pay utility bills on time in the last 12 months.

(Bouzarovski et al., 2020, p. 41)

2.3.2 Supporting indicators

Complementary to the above, Rademaekers et al. (2014, pp. 38–39) suggest the importance of also considering supporting indicators that measure factors contributing to the social experience of energy poverty. Such additional indicators deepen our understandings of energy poverty and have a role in policy development. For Hills (2012, p. 82) '*understanding the characteristics of fuel poor households is a first step to identifying them on the ground*'. Dunphy (2020, p. 13) outlines the key types of supporting indicators, including:

- Demographic factors – households with vulnerable members, for example, young children, elderly (especially those living alone), those with health issues, etc., are more energy vulnerable.
- Energy prices – differential pricing may apply in many cases (for reasons of, e.g., geography, bill arrears consumption level, service bundling) meaning that householders will not have equal access to tariffs.
- Income levels – lower income households are more likely to be energy poverty, no matter which way it is measured.
- Household composition – the make-up of the household may render it more susceptible to 'financial problems in general and energy poverty particularly' (Rademaekers et al., 2014, p. 38).
- Heating system – what type and condition? inadequate and inefficient heating systems will provide poor heating at a higher cost.
- Supply choice – due to lack of choice (e.g., due to geographical[11] and/or socio-political considerations[12]) or supply lock in (such as with district heating systems[13], or tenancy agreements).

- Building efficiency – age and technical characteristics of a building directly influence its energy performance, and householders of poor performing buildings are inherently more prone to energy poverty.
- Level of social supports – the amount of social security support in a household is an indicator of its vulnerability to financial shocks, which could manifest itself as, or intensify existing, energy poverty;
- Tenure (and security of tenure) – different forms of tenure (e.g., ownership, long-term leasehold, monthly rental, etc.) are associated with varying levels of control and influence in decision-making and 'may limit the energy efficiency interventions and fuel switching measures' that can be implemented (Bouzarovski, 2014, p. 280).

2.3.3 Indicators or identifiers?

Energy poverty indicators are essential to quantifying the number of energy-poor households while also helping to understand the depth of energy poverty they endure and allows for greater efficacy and efficiency in supporting energy-poor households through more informed target policy measures. While there are clear benefits to collecting and analysing additional data, larger data sets directly increase the administrative burden and may lead to certain organisational biases to emerge. When discussing the use of proxy indicators, Hills (2012, p. 71) argues that the use of strict thresholds, for example, may do more harm than good and suggests instead that 'imprecision in targeting may be desirable rather than undesirable'[14].

The use of indicators can greatly enhance our understanding of who is suffering from energy poverty, while the supporting indicators offer greater insights into the characteristics energy-poor households are likely to exhibit and allow for better targeting of policy measures to support the identified groups (Dunphy, 2020). However, it should be noted that the adaptation and use of indicators do not in and of themselves constitute a method for identifying (specific) energy-poor households and it is this identification stage that is still not always clearly understood.

2.4 Approaches to identifying energy-poor households

Much of the discourse on identification focuses on a combination of defining energy poverty, outlining the characteristics of energy-poor households, and/or macro- and meso-level data collection for analysis, monitoring, and benchmarking. In contrast, the mundane activities used to identify specific households in energy poverty are usually not seen as interesting or novel and are therefore underreported (if at all). More often, the emphasis in reports and publications on household-level work tends to centre on the engagement activities themselves. However, several scholars do discuss the practises for identifying energy-poor households and the approaches taken. Sokołowski et al. (2020) note that proper identification of energy-poor households should lead to more efficient application of the resulting support measures. Using national-level data analysis and extrapolation, they propose a multidimensional index with five indicators of energy deprivation: (1) low income and high costs; (2) high actual cost; (3) insufficient warmth; (4) building faults; and (5) difficulties in paying. A household is considered energy poor if it displays at least two forms of deprivation. While Morrison and Shortt (2008) present a GIS-based modelling approach designed to predict areas where energy poverty is most likely to be prevalent. Combining census data with individual dwelling-level data from local housing service datasets, they were able to identify the physical risk factors for energy poverty with social risk factors sourced from national census returns. The resultant risk score then enabled them to map

energy poverty risk ratings onto individual dwellings, allowing for more targeted identification of vulnerable households.

Another approach by Walker et al. (2012) involves a small-area energy poverty risk index using a range of environmental and socio-economic variables. Analysis is managed at the lowest level of geographical area for census statistics, Output Areas (OAs) (this approach has also been taken by Morrison and Shortt (2008) and Fahmy et al. (2011). The index offers a useful means for assessing energy poverty risks at a more granular level, i.e., c. 125 dwellings (Dunphy, 2020). Walker et al. (2012) also suggest identification should be targeted in areas of high risk, while households in more socially advantaged areas are encouraged to self-refer for support. Zooming out, Liddell et al. (2011) outline a zonal approach undertaken by the local council in Kirklees (pop. c. 400,000) in the United Kingdom, which developed the *Kirklees Warm Zone Project* initiative, offering loft and cavity wall insulation free-of-charge for every suitable household in the area. This so-called 'Zip-Up Method' for identification and implementation is seen as an exemplar for local authorities tackling energy poverty (Dunphy, 2020).

Another novel approach, described by Mohan (2021), is the application of public health referrals through the Warmth and Wellbeing Scheme in Ireland. This pilot government-funded scheme provides extensive energy efficiency upgrades to households with members suffering from chronic respiratory diseases. While in the United Kingdom, NHS doctors participating in a pilot scheme in Gloucestershire can prescribe heating to patients at higher risk of hospital admission during colder months (Lacobucci, 2022). Similarly, Scarpellini et al. (2017) describe a case study in Aragón, northern Spain, where social workers were equipped to identify energy poverty in the houses they visited. Subsequently, they were able 'certify' those households for access to public supports.

A more mixed-methods approach to identification outlined by Gouveia and Seixas (2016), involves the combining of daily electricity consumption data (using smart metres) with a 110-question survey of 265 households in Évora, Portugal. This combination of quantitative and qualitative data allowed for the grouping of consumers into three main groupings: those experiencing fuel poverty, those with a standard level of comfort; and those living in 'fat energy' households. While Spiliotis et al. (2020) offer a support framework for utilities to identify potentially energy-poor households. Using open-source weather data to determine heating and cooling degree days and national building standards to estimate the energy needs of 'reference' households, they combined this information with actual energy consumption data of those households (using the utilities' own billing databases) and area-level average data from national statistics to estimate household income. Applying this four-dimensional approach, they were able to identify energy-poor households whose energy expenditure is above 10% of household income, or those households consuming less energy than the relevant reference household (Dunphy, 2020).

However, such innovation is not new. Dubois (2012) outlines a delegated approach using local actors taken by the French programme *Habiter Mieux*, involving a mix of centralised and decentralised tasks. While determining and communicating the characteristics of energy-poor dwellings is centralised, actual household identification is decentralised through local actors (*e.g.*, medical and social centres, home-help assistance, credit unions, firefighters, and fuel suppliers) who use their local knowledge and social networks to reach out to, and identify, energy-poor households. Finally, Fischer et al. (2014) describe a variation of this approach, describing the work of energy advisory centres and their role in identifying energy poverty. Interacting with the public through telephone help lines, drop-in face-to-face 'surgeries' held in community spaces, etc. these NGOs are able to identify at-risk households who use their services, referring them for further assessment and supports[15].

2.4.1 Thoughts from the field

A key methodological approach undertaken by the EnergyMeasures H2020 Project was to conduct short, structured dialogues with researchers and practitioners working in the participating countries[16]. All the respondents have a track record of identifying and engaging with vulnerable energy consumers from across Europe. These households experience broad variations in seasonal extremes in climate, in addition to the socio-economic, political, and organisational structures available to them to cope with the challenges posed by energy poverty. Many respondents reported adopting a practice-based, mixed-methods approach to identifying and engaging energy-vulnerable households. While some do rely on data-driven analysis, especially for reporting, the task of identifying and recruiting energy-poor households is usually done through a combination of approaches.

These included more traditional marketing and advertising activities while maintaining a presence in the local community and promoting new or existing services. These include press releases, articles, news features in local newspapers, radio, parish and/or community bulletin boards, branded vehicles, etc., primarily designed to target older people with an established, more traditional network who might not engage with newer media. For younger people and smartphone users, similar results were accomplished through new content and promoting marketing material featured in traditional media outlets using popular social media platforms. Such activities helped with ongoing outreach work by the organisations involved, which targeted householders who may self-identify as being energy poor (*i.e.*, those already using the organisation's services or a partner organisation's services) often through advertised (printed material and through staff) at an organisation's drop-in facility in the target community, or at bespoke promotional events.

A number of organisations described the importance of *ad hoc* campaigning strategies with staff informing their friend and family networks of new or existing services, in the process helping to build trust through those staff members. Again, this word-of-mouth approach was especially useful when targeting those already aware of the organisation involved and/or its services and staff working there. A notable development over the course of the project was a move by some organisations to develop more collaborative projects with other NGOs, state bodies, etc. These partnership projects allowed two or more organisations to share resources for a specific campaign or service provision and maximise individual impact by using each organisation's database of existing users. Another notable development, as described above, is the growing emphasis on both direct and indirect referrals from social services, medical professionals, and other charitable organisations to those organisations specifically working to address energy poverty. This approach also allows for the referring organisation to assist with a problem that, while outside their remit, may impinge on their clients' social, medical, and financial well-being.

Some respondents also mentioned using mapping and engagement material generated from several European Horizon 2020 and older FP7 projects as part of their identification toolkit. None of the respondents mentioned using European or national datasets for identifying energy-poor households but instead relied on self-generated data. Most were unfamiliar with the four key indicators mentioned in Box 1 above or only had a tangential understanding of them, resulting in many organisations tasked with addressing energy poverty having to rely on mixed-methods approaches (Dunphy, 2020). While not necessarily a negative, it does result in unintended divergences between organisations and the communities they engage with and leads to those in most need of support not getting access to, or are made aware of, supports even when they are available. Also, the activities mentioned above require a degree of digital, financial, and civic/social literacy on the part of the citizen that they may not necessarily have.

In response to such challenges, actors working on energy poverty are starting to do more collaborative work with other local and state actors who share a common goal. An example given by an energy charity operating in a west European country described how it developed a collaborative programme with another charity whose remit covered topics other than energy. Pooling resources, including the dataset of participants already signed up to both charities, they co-devised a scheme whereby participants were able to receive vouchers to top up their pre-payment electricity meters[17]. This initiative resulted in novel synergies emerging between the charities and government bodies involved and had a greater beneficial impact on participants who were able to receive assistance from multiple organisations through referrals and cooperation (Dunphy, 2020).

Another respondent described their work communicating with households and implementing home metres to measure temperature and humidity in the home, with information collected and clear instructions relayed back to the occupant on how best to respond to sudden adverse changes in both[18]. Identification of appropriate participants is carried out in partnership with other energy charities working with individual landlords and landlord associations, rather than approaching tenants directly. This model prioritises engagement with the landlord/association, thus removing any potential for tension or negative responses if they were to go to tenants directly, who might struggle to encourage a landlord to make the energy-efficient investments necessary. Invariably, the issue of trust is key here, and the process results in a shift in focus away from the (potentially fraught) relationships between landlord and tenant onto addressing the actual condition of the property itself. Adopting a more tailored approach is very much seen as the best option by most respondents, with approaches to potential recruits framed by questions like 'how can we help you?', rather than appealing to the common good or on environmental grounds[19].

2.5 Conclusion

While a great deal of effort analysing energy poverty is carried out at both the macro-, and the meso-levels, a gap remains between such approaches and the actual identification of specific energy-poor households. In an effort to address this gap, this chapter has presented a number of potential approaches that may prove more beneficial to the local context. Most notably, the establishment of deeper relationships between organisations already working with households likely to be in energy poverty offers significant opportunities for amplifying the specific strengths of individual organisations beyond more traditional supports like social workers (Scarpellini et al., 2017) and health professionals (Mohan, 2021), to more nuanced and broad-ranging advice from, for example, debt advisors, social stores, housing associations, advice bureaux, consumer groups, NGOs, municipalities, and utilities (Dunphy, 2020). While the practical approaches forwarded in this chapter may rightly be seen as not entirely novel in their own right, it is through the application and synergies between organisations that one sees the real innovation.

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Notes

1 An earlier version of the work presented in this chapter can be found in Dunphy (2020), a research report for the EnergyMeasures H2020 project.
2 For a more comprehensive treatment of the topic, especially the biases skewing approaches to measuring energy poverty, see Dunphy (2020).
3 Palmer, MacInnes, and Kenway (2008) highlight that the link between energy poverty and income poverty is somewhat weakened by rising energy costs.
4 Castaño-Rosa, Solís-Guzmán, and Marrero (2020) further emphasise the multi-dimensional nature of the phenomenon, observing that there is not a clear link per se between energy poverty and the energy (in)efficiency of buildings. The issue is more complex than that.
5 This example was demonstrated to us in an earlier Horizon 2020 project, ENTRUST [2015-2018], where a participant told us of their experience working with energy-poor households in a recently refurbished housing development. She explained: '*this young lad walked in from the flats with a voucher, and they gave him food and he turned around and said, "I don't want that. I don't want that. I don't want that." And she (a co-worker) said, "That's not on [and became frustrated with the young man*]."' When the participant approached the young man to ask him why he did not want the food package, he explained he could not afford the gas or electricity needed to cook the food being given to him. The young man could not afford to heat his apartment and cook a nutritional meal for himself; it had to be one or the other (Dunphy et al., 2017).
6 Including, for example, low income, poor quality of housing stock, social contexts, market conditions, individual financial circumstances, and health-related factors.
7 As a result, different candidate methods were tried and then modified by the partners based on local specificities (an additional challenge partners faced concerned the ongoing impacts from the COVID-19 pandemic in the different locations).
8 The pre-eminence of expenditure-based measures is typically explained by the perceived superiority and objectivity of such data compared to self-reporting (Sareen et al., 2020).
9 Rademaekers et al. (2014, p. 50) note that absolute monetary expenditure must be used to measure hEP rather than the proportion of income spent on energy. Otherwise, higher-income households could potentially also be classified as energy poor given the (very) low share of income they expend on energy.
10 The Irish Government's 2016 review of residential energy incorporated bespoke residential building stock model data from the national household budget surveys and the official building energy rating database to compare household income to the theoretical energy spend required to keep houses heated to WHO-recommended standards. As a result, the emphasis was less on the actual expenditure incurred and instead focused on the expenditure that would be needed to achieve acceptable levels of warmth.
11 The lack of choice in rural areas is well documented, where typically natural gas is not an option, there will likely be fewer electricity suppliers, and there will be a disproportionate dependence on fuel oil heating systems, or even solid fuels from a rather limited number of suppliers. This lack of choice can also be found in urban and peri-urban areas, where, for legacy (often socio-economic) reasons, the choice of energy sources and suppliers may also be restricted.
12 Even when there are multiple energy suppliers, they may not be equally available to all households. Requirements around a variety of issues (e.g., credit scores, minimum purchases, tenure status, contract length, payment methods, etc.) often combine to restrict actual choice for the less economically privileged.
13 See, for example, Bouzarovski et al.'s (2016) examination of the embeddedness of energy poverty in post-communist Hungary.
14 Hills (2012, p. 73) suggests that having households who are not strictly identified as energy poor still be eligible for policies is '*not necessarily undesirable since eligibility criteria which include households on the margins of fuel poverty are still likely to help address the problem of fuel poverty in the long term, either by helping those households whose energy costs are just below the threshold and who may become fuel poor over time, or by helping those who are just above the income threshold but who are still facing high costs*'.
15 These supports may even be carried out within their own organisation or by an external service provider. A key attribute of this approach is that the accessible nature of these organisations (via energy advice centres) means that the barriers to engagement are low.
16 Belgium, Bulgaria, Ireland, the Netherlands, Poland, North Macedonia, and the United Kingdom.

17 While these vouchers were only given to households that engaged with their services, participants received the vouchers as part of a wider package that included other supports, such as food parcels. Households were identified through local partners, government agencies, general practitioners, health, and addiction services, etc.
18 Usually advising manual ventilation by either opening or closing windows, *etc*.
19 This, and the previous example, feed into what Mullally, Dunphy, and O'Connor (2018) describe as a paternalistic perspective, which sees that armed with the 'correct' knowledge and given the 'facts', people will be 'persuaded' to change their behaviour. This approach ignores how behaviour is often locked into socio-technical systems and normative practises that individual citizens have little agency to change.

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