

Shockingly cold and electricity-dependent in a rich context: Energy-poor households in Norway

Torjus Lunder Bredvold¹; Tor Håkon Jackson Inderberg^{1*}

*Corresponding Author

¹ Fridtjof Nansen Institute, Lysaker, Norway

Abstract

Norway remains an understudied context for energy poverty. Resting on semi-structured interviews with 17 households located in two general areas around the wider Oslo region, the article draws on Bourdieu's concepts of social fields and capitals, as well as more recent social practice theory. We use this to explore what makes Norwegian households vulnerable to energy poverty, their coping strategies, and implications for health and wellbeing. With its particular reliance on electricity as household energy carrier, general high income-levels, and being at the forefront of the energy transition, the case of Norway generates insights useful for understanding energy poverty implications of decarbonisation. We show that households that are heavily dependent on electricity, have unstable incomes, and live in energy-inefficient rental housing are especially vulnerable. The most marginalised households are typically headed by unemployed persons of working age; dependent on parental assistance to live 'normal' lives, and they often struggle with stigmatisation and shame. Lack of access to economic and social capital influences their energy practices and vulnerability in several social fields, also beyond direct living conditions. With increasing electrification of sectors like heating, transport and industry, findings from Norway are relevant to energy-poverty scholarship on electricity dependency and decarbonisation.

1. Introduction

Energy poverty is a form of material deprivation when 'individuals or households are not able to adequately heat or provide other required energy services in their homes at affordable cost' [1]. Living in cold, dark homes is a typical indication of energy poverty; it may have wider implications, including social exclusion, and deteriorating health and wellbeing.

There is a growing body of research on the implications of energy poverty for households in Europe [2–7]. However, whereas the EU seeks to combat this problem by including measures in its energy and climate target for 2030 [8], less is known about how energy poverty affects households in countries with already largely electrified energy sectors – like Norway. Norwegian households have among the highest levels of domestic electricity consumption globally; electricity use represents approximately 80% of domestic energy consumption, including a large share for heating [9,10]: significantly greater than other European countries [11]. In Norway's hydropower-dominated electricity system, electricity prices are closely linked to precipitation

levels; they are also influenced by European price levels, but tend to be significantly lower than these. However, Norway's dependency on electricity may produce households that are *more* vulnerable once they have reached a state of energy poverty, and in combination with social expectations of energy demanding practices [12], this may be aggravated.

Southeastern Europe typically performs worse than countries in northwestern Europe on energy-poverty indicators [13–15], but Norway remains remarkably understudied here. It is only occasionally included in reports on energy poverty in Europe where it typically performs well on standardised energy-poverty indicators [16,17], although it has been found to be less effective in managing the problem than other Nordic countries [15]. While energy poverty figures are scant for Norway, about 1% of Norwegians have been reported as having difficulties in keeping warm, with 2.4% unable to pay their electricity bills in 2016 [18,19], something that is significantly lower than the European average [20]. Researchers have noted validity issues with such standardised metrics, and that identifying energy poverty can be particularly difficult in countries where there is stigma attached to being seen as 'poor' or adopting 'inadequate' lifestyles [3,4,21]. This is likely to be the case in Norway, sometimes projected 'A Society without Poverty' [22].

By drawing on concepts from Bordieuan social fields and material and social capitals from practice theory to analyse households we address the research gap on the Norwegian context while also addressing a call for deeper understanding of the factors leading to energy vulnerability [23,24]. We do this by investigating the living conditions of Norwegian energy-poor households. Through a qualitative study based on interviews with 17 energy poor informants, we explore the following research questions: *What makes urban and semi-urban households vulnerable to energy poverty in an affluent and electricity-dependent country? how do these households cope with their situation? how does energy poverty have implications for their health and wellbeing?*

Although Norway is ranked among the world's most income-equal countries [25], inequality is a growing problem [26]. Those experiencing income poverty may be hard-hit, potentially experiencing energy poverty 'lock-in', with persistent low incomes becoming a growing problem [27,28]. This is likely to be further aggravated by Norwegian households being highly electricity-dependent.

This situation takes place in a context of significant changes and challenges for the Norwegian energy sector more widely. The main national decarbonisation strategy is further electrification of transportation, industry, and other sectors – including offshore petroleum installations – as the electricity sector is already fully renewables based [29]. Given this, there is a declared need for more generation capacity, something that has turned controversial over the last few years, along with the established interconnectors abroad and the integration in EU's internal energy market [30]. Norwegians are used to comparatively low electricity prices compared to many of the other Western European countries, but this has recently changed. The 'price crisis' on electricity winter 2021-22, caused by a number of aligning factors, might still be a forewarning of longer-term high price fluctuations, something that puts the electricity-dependent Norwegian households in an exposed position. However, there exist no official Norwegian definition or measure of energy poverty, and the success of policy measures are therefore unclear. Studying Norwegian energy poverty is therefore pertinent.

The article contributes to the energy poverty literature in several ways. To our knowledge it represents a first qualitative analysis of energy poverty in Norway, and identifies some particular challenges emerging with high electricity dependency. We find indications that being energy poor in a relatively affluent society may bring aggravated shame and stigma. Theoretically, the article links modern social practice theory back to Bourdieu's notion of fields and capitals to show how this influences how vulnerable households are impacted by different aspects of energy poverty. Unsurprisingly we find that access to economic capital is a significant factor for energy vulnerability, but also that social capital is important and can be accessed in various ways. Such capital influences not only the housing situation but reach well beyond to other social fields as well. These factors play out differently depending on the interviewees' situation.

2. Analytical framework

We draw on practice theory to explore likely causes of energy poverty, how households cope and its key implications for them. Although this is a wide and plural field, practices can be defined as 'a routinized type of behaviour which consists of several elements, interconnected to one another: forms of bodily activities, forms of mental activities, "things" and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge' [31]. As such, behaviour (e.g. cooking, heating) is neither a product of conscious deliberation or social determinism, but daily routines performed in a social context of meanings and identities. Therefore, it is expected that different people may experience energy poverty differently although facing similar problems such as high energy costs and poor housing quality.

We use a simple combination of two phases of practice theory, from primarily Bourdieu's insights of fields and capitals, and the more recent contributions developed by Pantzar, Shove and others [32,33]. These latter developments connect the insights on the role of fields and capitals, to focus on the social practices taking place within these fields and to generate insights about sustainable practices and consumption.

To understand how households have unequal access to such material and social elements, we draw on the Bourdieusian concept of *fields* as denoting social spaces with a hierarchical structure of resource access [34]. Fields that may be relevant to energy poverty include the housing and job markets, energy consumption, social welfare system, and the health sector. Households' capacity to act, adapt and produce changes within a given field depends on the ability to mobilise different forms of capitals. While Bourdieu identified three types of capital – economic, cultural, and social [35] – the focus in this article is primarily on the economic and social ones. These concepts enable us to illuminate the interviewees' agency and capacities to manage their situation.

In our context, capacity to act then depends on how much economic capital (e.g., finances or energy resources) and social capital (e.g. social network or symbolic meaning of action or identity) the household individuals can utilise [36,37]. Households' possession of capitals is typically unequal providing them with different positions in the different social fields, and in turn shaping how they are impacted by different aspects of energy poverty.

More recent practice theory understands agency as distributed among elements such as materials, competences, and meanings that dispose agents to perform practices in 'appropriate'

or 'normal' ways [32,33,38]. Particularly for the purpose of this article, we will emphasise the role of materials in different shapes, as Households ability for 'appropriate' use of energy is shaped by material elements such as the energy efficiency of their dwelling and their access to various fuel carriers. We further expect that households' capacity to cope with energy poverty is shaped by norms and social meanings that reflect negatively on the households [39]. For example, being unable to use energy 'appropriately' may be experienced as social indications of poverty, indecency or being outside-of-the-norm. 'Social exclusion' is therefore understood as a situation where material and social elements are distributed in ways that restrict certain households in using energy 'adequately', and access to different forms of capitals influence the ability to manage the situation in the short and longer term.

We expect households affected by energy poverty to possess little capital, and economic capital in particular, as low income is an important cause of energy poverty [40]. Having little economic capital does not merely imply that households have less flexibility to manage rising energy prices, we also expect households with less economic capital have acquired worse housing and have made fewer investments in energy improvement. This will have further implications for their need for coping and how much wellbeing they must sacrifice in order to cope with energy poverty. Furthermore, we expect that households who can draw on larger social networks for financial support have greater capacity to service energy bills and make energy investments. We expect to find differences among energy-poor households, where those that exhibit coping capacity and flexibility are likely to have larger amounts and various types of capital available.

The more recent strands of practice theory inform the mapping of the empirical data in chapter 4, by assisting the characterisation of the interviewees' situation, how they manage this, and the implications of energy poverty, before we analyse household practices in Chapter 5 relying on the combination of Bourdieu's capitals and the more recent focus on practices. This combination of perspectives enables a rich contribution to understanding the situation of the energy poor in the study, their strategies to cope, and implications for their health and wellbeing. We argue that energy vulnerability often goes through energy related practices. These practices often take the form of taken-for-granted daily routines that take place within material and social structures. This framework thus enables the identification of households' room for manoeuvre within practices in light of their participation in social fields, and how access and use of different forms of capital empower or disempower energy poor in their situation, and influence their well-being.

3. Methods

There is an ongoing discussion in the literature about defining energy poverty, and a coherent definition and assessment are still lacking. Bouzarovski et al. [41] and Feenstra [42] note two main types of definitions currently used when measuring EP: they focus either on households that spend a high share of their income on energy (typically above 10% as indicating EP) or on households with insufficient access to energy services. The latter case, linked to the definition of EP above, draws on the self-reported experiences of people living in EP, and as such links to the 'subjective' measurement of energy poor [40]. Further, identifying EP is likely to be more difficult in countries where being seen as 'poor' or adopting 'inadequate' lifestyles is stigmatised [21].

The qualitative research here consisted of 17 semi-structured interviews with 18 household members, The households are spatially distributed around the wider Oslo region, and three were located in the medium-sized town of Fredrikstad (around 82,000 inhabitants), outside but in the vicinity of town centre. Most of the households were in an urban or semi-urban setting. This context means that the findings for this interviewee sample do not necessarily represent the full range of experiences of energy poor in Norway. Particularly for more rural energy vulnerable this is likely to be the case [43], as additional transport challenges, access to alternative heating sources like firewood, other social dynamics and other factors may be of relevance there.

Our research primarily relates to the ‘subjective’ definition of energy poverty [40], although it should be noted that the interviewees were often not familiar with the concept of energy poverty prior to the interview. This has therefore been interpreted by the researchers. The choice of resting on subjective measurements and interviews has certain weaknesses, including limitations for extrapolating findings and ability to assess the scope of energy poverty. Within the limitations of a case study [44], although linked to previous research, our purpose is to investigate the causes for energy poverty across the interviewees, as well as typical coping strategies and influence on their health. While the number of interviewees is not atypical for interview-based studies of this kind, and the recruitment process (see below) strictly speaking means that validity beyond the interviewees in the study is unknown, we should expect the phenomena found to occur also with other energy poor in Norway [45].

Interviews as the main data source was chosen as information about individuals’ experiences is difficult to obtain from other sources, and sufficient statistical data does not exist to illuminate the width of practices and perceptions needed here. Moreover, the choice of qualitative interviews is grounded in a more constructivist epistemology of practice theory, to study “what it is like” to be energy poor [46]. The 17 households were selected according to the dependent variable, their energy situation, as they all had struggled to pay their electricity bills or maintain adequate home temperatures. Ideally, more information about the interviewees’ dwelling types and sizes would have strengthened the understanding of their context – this is something to include for future research. Key ethical considerations when interviewing vulnerable individuals are sensitivity to their situation and protection of the interviewees’ rights. This was secured by anonymising the interviewees, safe storage of data, and being attentive to the relationship between interviewer and interviewee.

Recruitment of the interviewees was facilitated by the Norwegian Tenants Union (*Leieboerforeningen*) and Operation Firewood (*Operasjon Ved*) – a small organisation that provides free firewood, primarily to needy pensioners in the Oslo area. Two informants were selected because of their accounts about experiences with energy poverty published in traditional and social media; three through snowball recruitment. Informants recruited via the Tenants Union and snowball recruitment were identified based on their responses to two emailed questions: on the affordability of energy services (‘How many times have you struggled to pay the electricity bill in the past 12 months?’), and heating (‘Do you struggle to maintain adequately warm indoor temperatures during the winter?’). The remaining informants were not asked to respond to such questions, because of information available on their Facebook posts and news articles, and client descriptions provided by Operation Firewood. All informants received a gift voucher of €50 as compensation for their time. This way of selecting interviewees is not uncommon in research on energy poverty [5,47,48], but since recruitment is not randomised and

the researchers do not control all parts of it, this means that the extent of the findings among energy poor households is unknown.

All but three interviews were conducted in the informants' homes, between October and December 2019. During one interview, two household members were present. Our energy-related questions on domestic energy management were deliberately general, to avoid asking directly and explicitly about sensitive issues. Questions were framed in a neutral and open-ended way, to encourage about the everyday aspects of energy use and the implications of energy poverty on health, personal finances, wellbeing, and social life. This also lessened potential challenges with 'energy literacy' in cases where (mis)understanding of technical understanding might inhibit clear communication with the interviewer. (See interview guide in Appendix 1.)

Post-interview the households were divided into two groups for the analysis. This was done based on the characteristics of their situation and their abilities to manage their situation. The main purpose for this division is to indicate nuances between different groups of energy vulnerable or poor, by social practice theory, capitals and fields. Key criteria for the separation are the combination of being in a stable housing situation or not, and degree of income reliability (see below for further empirical details), differences between the groups that were relatively systematic. While such a distinction can be criticized, dividing the interviewees into two groups has the benefit of illuminating systematic differences between the two groups, including exposure to electricity prices, degree of vulnerability, and policy implications that can be drawn from the findings.

4. Empirical findings: Energy-poverty experiences

Energy poverty in Norway happens in an energy and welfare system that is perceived to be comparatively well-developed. Generally, social support is channelled through the Norwegian Labour and Welfare Administration (NAV).

Several of the interviewees have been working for years to receive permanent disability benefits, to replace the temporary and lower rate work assessment allowance (AAP). This is a benefit intended for individuals with reduced work capability (by at least 50%), and represents an annual income of minimum 1600 EUR for periods of six months at a time [49]. The official intention of this measure is to provide financial support while the subject of AAP tries to reenter fulltime work, and there follows certain requirements for relevant activities and work and capability tests. The interviewees with AAP experience their situation as psychologically difficult because of the temporary and uncertain status of their income, and the situation where they felt too ill to work, but with the risk of losing AAP if tests deemed them sufficiently capable to work. Even though the intention of AAP is to limit it to maximum three years, several interviewees had experienced receiving it for over a decade.

More permanent energy poverty relevant policies are still found mainly in the social security sector.¹ In addition to NAV support, there are schemes intended to assist with house expenses. Beyond various social emergency support measures, the most relevant of these is perhaps Housing Allowance, a means-tested government grant for persons with low incomes and high housing expenses. This is intended to be used to assist with particularly high energy expenses but has had a reputation for being less targeted to the weakest, and there have been cases where recipients of the municipally controlled NAV support have seen this being cut following Housing Allowance support. We map the concrete interviewee experiences with these below. The developments in the electricity price further deserves a short description. Norway has for many years enjoyed low electricity prices compared to other western European countries. This has benefitted industry developments and households alike, and should be assumed to have contributed to the high household electrification. Figure 1 shows the developments in the electricity prices for Norwegian households, including grid fees and taxes. Up until 2019 the electricity price was relatively stable at around 80-120 Øre (€0,08-0,12) per kWh, about €8-12 per MWh, although there have been some 'natural' price fluctuations given the precipitation dependency of the Norwegian electricity system [50]. After the data collection was finished, 2020 saw particularly low prices, but in 2021 and into 2022, the prices have seen unprecedented levels. Figure 1 is complemented by Figure 2, which shows developments in the rental market in the most relevant area for the interviewee group. The developments in rental costs are increasing in the period as well, leading to increased pressure on the finances of tenants. The increase is slightly higher than general price developments.

¹ It should be noted that subsequently to the research, during the 2021-22 electricity price crisis, there have been measures also within the electricity sector's policy area, including direct support from the state to cut electricity bills for all consumers.

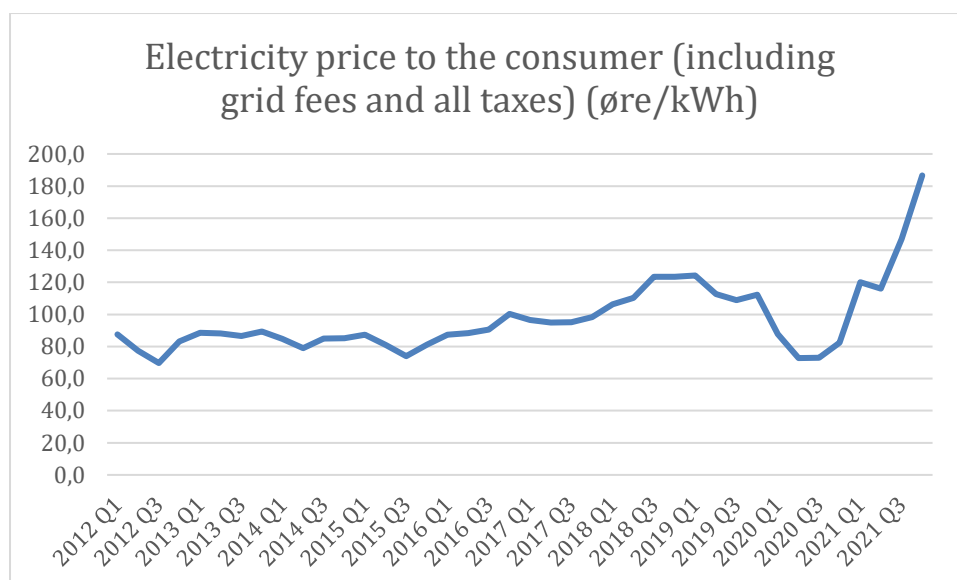


Figure 1: Electricity price developments in Norway, in Øre (100 Øre is €0,1) Source: [51].

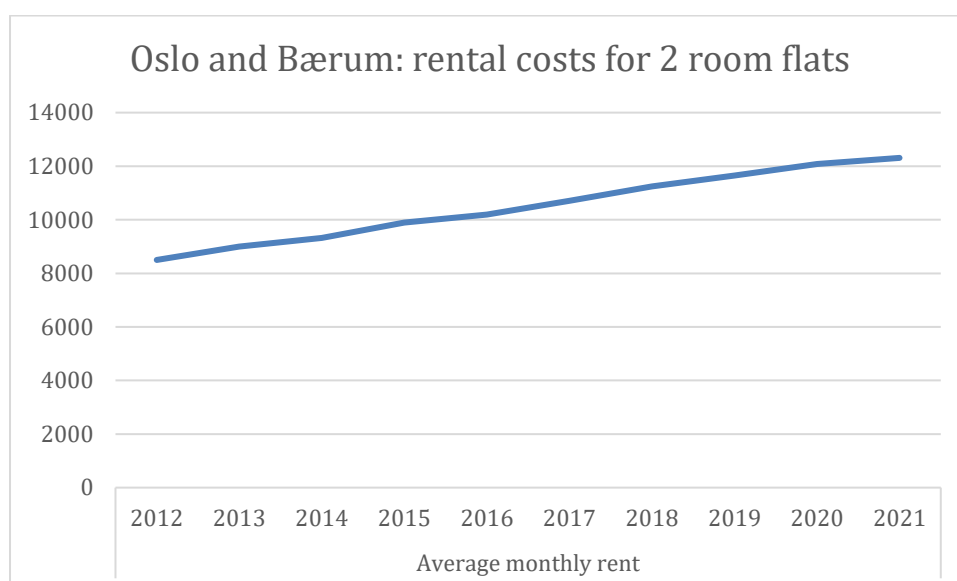


Figure 2: Average rental expenses for two room flats in Oslo and Bærum municipalities. in NOK (1000 NOK is €100). Source: [52].

Beyond the general welfare system and electricity prices, the empirical mapping is organised first into a section mapping the experiences of and perceived causes for being energy-poor (4.1), strategies employed to cope with energy poverty (4.2.) and the wider implications of this situation (4.3.). The sample is divided into two groups according to how affected informants are by energy poverty (see Table 1). The two groups differ in terms of housing, personal finances, and electricity costs, how much they must do to cope with energy poverty, and the implications for their health and wellbeing.

4.1. Characteristics of the interviewees' situation

The household characteristics from the interviews are summarised in Table 1 below. In addition to the information in the table, it should be added that only two of the households had access to a car, and one household used a scooter when it was not wintertime. Reflecting the location in the wider Oslo-Fredrikstad region, the local milieus of the households were urban- to suburbia. This means that there is some transport involved for getting groceries and accessing some public services, but most of the interviewees' movements were not particularly expansive. This situation is relevant for the households potentially experiencing also 'double energy vulnerability' where they cannot afford or access sufficient energy services *as well* as sufficiently covering transport needs [53,54]. While we note some links between these vulnerabilities, our main focus here is not on transport poverty.

As discussed in the methods section (3.), we divided the households into two groups. The group defined as in a *precarious situation (P-group)* depend mostly on electricity for meeting their energy needs. They struggle to stay warm while using electricity to an affordable degree; in winter, this requires major lifestyle adjustments. These interviewees were all under 60 years of age, in an unstable financial situation, dependent on social benefits or being the sole provider in the family. They tended to live in energy-inefficient rental housing. An exception here was Female 43, who had low electricity costs because district heating was included in the rent. However, the Norwegian system for pricing of district heating made the costs of heating only marginally lower; due to unstable finances, she had significant problems in paying the electricity bills (see Table 1 below). Our use of 'precarious' indicates an inductive judgement that this group has low capacity to cope with high electricity costs and maintain comfortable indoor temperatures.

Members of the group defined as vulnerable informants (V-group) are better-off. Generally, they are more preoccupied with staying warm, and less with the costs involved, likely because they tend to have more reliable income. Although they have low incomes, lower housing costs generally provide some protection. Additionally, they tend to live in more energy-efficient housing, with alternative heating options (see Table 1). Most informants in the V-group are pensioners. However, one working 33-year-old male was placed in this group as he splits electricity costs with two roommates and is rarely forced to ration energy use. We interpret the situation of this 'vulnerable' group as reasonably stable, although they struggle to access sufficient energy services, particularly heating. See Table 1 for further overview.

Being energy-poor in Norway has significant implications for being able to maintain sufficient heating at affordable costs.

Group	Gender	Age	Household size	Main income source	Housing	Alternative energy sources
	Male	48	1	Social benefits	Rental	
	Female	43	1	Social benefits	Rental	District heating
	Female	58	1	Social benefits	Rental	
	Female	38	1	Social benefits	Rental	
	Female	44	1	Social benefits	Rental	

Precarious	Female	28	1	Social benefits	Rental	Woodstove
	Female	27	3	Social benefits	Rental	
	Male	29		Social benefits		
	Male	36	1	Social benefits	Rental	
	Female	47	4	140% employment	Rental	Woodstove
	Male	46	5	100% employment	Rental	Woodstove
Vulnerable	Female	70	1	Pension	Rental	Woodstove
	Female	98	1	Pension	Rental (son)	Woodstove
	Female	79	1	Pension	Rental (son)	Woodstove
	Male	69	1	Pension	Self-owned	Woodstove
	Female	72	1	Pension	Self-owned	Woodstove
	Female	69	1	Pension	Rental	Woodstove
	Male	33	3	80% employment	Rental	

Table 1: General information about interviewees

4.1.1 Outdoor temperatures and electricity costs

Most informants said they were not able to maintain adequate indoor temperatures at home. They typically occupied low-standard flats or duplexes with thin windows and little insulation, poor sealing strips or similar deficiencies. Almost all informants expressed concern with staying warm throughout the winter. For instance: Female 98: ‘I feel like I’m always freezing. Yesterday I thought about going to bed, maybe I wouldn’t freeze like that then. But I’m not going to do that.’

In winter, Informants typically spent well over 20% of their income on electricity, costing between €180 and €300 during the coldest season. Relying mainly on electric heating, they felt ‘trapped’ by the complexity of electricity pricing;² moreover, the need for heating was determined by outside temperatures beyond their control. They often find their efforts to reduce electricity costs by minimising consumption are countered by rising electricity prices. This was generally seen as a trap threatening their finances, wellbeing, and health. As Female 58 said: ‘It’s sad. We’re so dependent on electricity here in Norway, the harsh climate we have and all that, it shouldn’t

² Issues with electricity pricing include hourly price variations for electricity, as well as separate taxes, grid tariffs, and other components adding to the complexity.

be like that. It shouldn't be so that some people have to freeze. We have to light candles [to stay warm].' And Male 48: 'I'm afraid that electricity prices will stay high and the winter will be tough. What will I do then? What can I do? That's what I'm thinking about these days.'

While the cost of electricity was perceived as a crucial barrier to adequate heating for most informants, those in the P-group – who generally did not have the advantage of heating with other fuel sources – were especially vulnerable to electricity prices. This led to conscious choices where they sought to balance necessary heating and other energy services with affordability – an impossible balance, in their view. This was sometimes an unsteady balance, as expressed by Female 58:

Every now and then, on days when it's really cold and rough and I'm freezing and feeling a lot of pain, like that, I'll tell myself that tonight we're going to enjoy ourselves, so I crank up the heat and then it's really nice and warm. Then when I go to bed, I turn it down again. I can't afford to keep doing that, you know. It's sad.

However, setting the thermostat at maximum temperature is not necessarily sufficient to achieve a comfortable temperature, given the low quality of the dwelling. As Female, 47, explained: [My son] had a friend over a while ago, and then his friend said *it's so cold in your room*. My son replied that the heating was on, it was set to max. But when they talked, you could see his breath, so it was really cold.

Having a woodstove gave several informants access to more heating options, enabling them to boost the heating efforts by co-firing, or using the most economical alternative. They felt the main advantages of having a woodstove were that it was *easier* to stay warm by direct, point heating, with a 'cosy' warmth they described as preferable, and that such stoves could make heating more *affordable* as wood is generally cheaper than electricity. A considerable share of the heating consumption of V-group informants was based on firewood; consequently, they were less concerned about affordability, and more concerned with staying warm. Male 27 envied his downstairs neighbours for having a woodstove: 'My dream is simply to have a woodstove. That would solve a lot of [my] problems.'

4.1.2 The housing situation

The degree to which our informants are 'trapped' in energy-inefficient housing varies. Those in the P-group saw their rental situation as an obstacle to making necessary energy improvements, leaving them with little incentive or means to improve the energy-efficiency of their accommodation. Landlords were described as rarely willing to make improvements; if they are, informants worry about having to pay higher rent. However, many said they were living in the best available option. Although the housing options of all informants were limited by their low incomes, several in the P-group experienced their status as recipients of social benefits as an additional barrier to finding adequate housing. A 28-year-old informant described how she ended up in her current accommodation:

I was looking at flats all over town, it's very difficult to get a flat here It's become very popular among students (...), at every viewing I went to, some 20 to 30 people had been there in one day. And if you have nothing like a job or studies, you're deprioritised immediately.

Members of the V-group had more possibilities for coping with electricity costs and cold temperatures; many had woodstoves. Several had been able to purchase their own home, which meant greater stability in their situation, as well as better possibilities to improve the dwelling. Two in this group had arranged for their adult offspring to inherit the house while they continue to live in a section of it. This further reduced housing costs and led to additional support. Female 79 paid her son a low rent as well as a fixed monthly price of 150 EUR for electricity instead of subscribing to an electricity provider: 'We've agreed that the housing costs should be low, because I've given him the house. I can live here as long as I need to, for as long as I live. If he should have to sell, he'd have to buy me a flat.'

Additionally, the 33-year-old male in this group enjoyed the benefit of splitting electricity costs with two flat-mates.

Despite having relatively favourable housing conditions, those in the V-group were constrained by their low incomes. They too generally occupied hard-to-heat dwellings, despite being the only informants in our sample who reported having made energy improvements (mostly through minor measures, due to their low incomes). However, they mentioned poor energy efficiency and other housing-related deficiencies less frequently than those in the P-group. Male 69: 'There's a draught from the window. The windows were changed in '86. In the kitchen I have a sealing strip, like the ones my brother-in-law has.'

4.1.3 Access to sufficient income

The financial situation of our informants made them especially vulnerable to rising electricity prices. They all had low incomes, mainly in the form of social benefits of at least €1600 or a minimal state pension of €1700 to 2200 per month. The EU poverty limit is set to 60% of median national income, which corresponds to roughly €2700 for Norway [55,56]. Most of our informants lived on one income; in two cases, there were two or three children and a significant other to provide for.

The P-group informants who relied on social benefits were in a particularly unstable financial situation. They are often dependent on low-rate work assessment allowance (WAA), which entails protracted bureaucratic application processes for renewal every six months, eventually qualify for a slightly higher and permanent disability benefit (from at least €1900). While WAA is intended to be given for a maximum of three years, some informants had been 'stuck' on WAA for more than a decade. Asked whether the social support services (NAV) have broken the law, Female 28 responded:

Well, yes.. Without going into the details, I've been going to therapy and received written documentation from doctors and therapists and all kinds of things for the stuff I've been relying on. Black on white. But [NAV] has ignored it, just refers me elsewhere, making it worse and worse, until I broke down, both physically and mentally.

Although the P-group informants described receiving disability benefits as a relief, many continued to battle for welfare entitlements. Several of those under 40 years of age had not received entitlements specifically intended for 'young disabled persons' that would provide them with an additional €300 a month (NAV 2020d). Several had experienced that getting an additional benefit led to the removal of another one, leaving them in a zero-sum benefit situation. Notably, at the time of interviewing, none of our informants had received housing allowances specifically

intended to cover the high housing expenses of low-income households. A few informants in the P-group said they were not 'poor enough' to get housing allowance, even though they depended on social benefits and struggled to cover their energy expenses. Male 48 even questioned whether housing allowance was intended to help people like him who depend on social benefits: 'Housing allowance is something we hear that people get. I don't know anyone who has disabilities and gets a housing allowance. No-one! So, this housing allowance thing is a mirage for me!'

The only interviewee who had ever received housing allowance lost it upon being shifted from WAA to disability benefits. That change made him 12 euros 'too wealthy' to qualify a monthly housing allowance, leaving his income virtually unchanged from before the extra benefit. Generally the P-group informant members were locked in a material income and dwelling situation that proves both expensive and makes it difficult to satisfy basic needs, while also not recognized to be sufficiently difficult to trigger economic support.

The two P-group informants with employment have had to work overtime for long periods to cover their energy bills, while being single providers for four- or five-person families. After receiving a backlog electricity expense of 2300 EUR, informant Female 47, who had to support two children and a chronically ill husband, explained: "I think this went on for almost 6 or 7 months, just work, work, weekend, weekdays, evenings, day, night ... I left home at seven every morning and wasn't back before 10.30 or 11 almost every evening, weekends too.'

Some also mentioned how their financial situation led to difficulties in making 'good' decisions, perhaps further worsening their financial situation. This has been previously identified as a challenge also in other research [57]. In the words of Male 48:

It's a mechanism that kicks in when you feel financially constrained. There's a lot of research that indicates it: People aren't spending their money like drunken sailors because they're stupid – they spend it stupidly because they're poor.

Those in the generally older V-group were in a more stable financial situation. Although their incomes were comparable to those of the younger informants, they enjoyed stability and predictability. Unlike those in the P-group, they did not mention financial problems in connection with filing for benefits, or having had to work overtime to make ends meet.

Enjoying stable (albeit low) incomes, V-group members' personal finances are more clearly defined. As pensioners, they generally worry less about scraping by during the winter, and often mention being skilful at managing their finances and living according to their means. However, their financial situation is still vulnerable. The only person with paid employment in this group, the 33-year-old-male, works 80%, and the seniors' pensions are all in the minimum pension brackets.

Female 79: I hold back regarding many things, because my pension seems small compared to what we used to have. [...] back then, there was my husband's pension as well. It was he who paid the rent and all sorts of things. My pension was just for when we needed more, when we wanted to buy something extra. I've never earned a lot, because I never worked fulltime.

Female 69: I'm very economical, the type with organised finances. I put aside money to make sure I have enough. I know which bills to pay every month ... I've just got used to it,

but if the electricity bills were to double in size, I think that would be really tough. I'd find that very difficult, then it would really start to affect my daily life.

4.2. How the interviewees manage their situation

4.2.1 Coping with electricity costs and cold dwellings

The most prevalent energy-saving practices observed in our study concern heating. Informants often mentioned how they would heat only one room, staying close to movable electric radiators to make the most of the heat produced, or would simply go to bed. However, such strategies were rarely sufficient to enable them to stay comfortably warm. They would often wear warm clothing, including multiple layers of wool socks, underwear, long trousers and sweaters and, with several P-group informants, outdoor-wear like caps, fingerless mittens and boots.

Female 28: I always have my beanie with me, because in the evenings I'm freezing to death; even if the heating's on full throttle and I close the doors, it's still pretty bad.

Two P-group informants who suffered from chronic muscle ailments that rendered them particularly vulnerable to inadequate heating used electric blankets to stay warm. One of them explained that she stayed covered by the electric blanket most of the time.

Female 29: I have XX [illness that causes chronic muscular pain] so I need a little more warmth than him [her partner, Male 27]. So, I live inside the electric blanket, and that costs a lot. I always have my electric blanket with me.

Woodstoves provided nine of our informants with an alternative to electric heating. They would stock up on cheaper firewood for use when electricity prices rose. Notably, pensioners in the V-group benefitted from receiving free firewood from the organisation Operation Firewood as well as a social network of family and friends. However, woodstoves also entail some challenges. In particular, P-group informants with woodstoves explained that they lacked the means to invest in firewood and transport it. Two mentioned having to carry firewood themselves, and therefore restricted its use to the coldest periods or when electricity prices were particularly high. As Female 28 put it: 'I've carried firewood only once, and after that I said *f*ck it all*. It seemed so [...] awful.' This point from the interviewees links to transport poverty, where we should note that lack of access to transport is another obstacle for alternative household energy use beyond electricity for this group. This is a link in the double energy vulnerability literature that is not often noted (see [54,58]).

P-group informants further rationed heating consumption to cut costs. They utilised small sources of warmth such as candles and leaving pots of warm water on the stovetop after cooking dinner, to utilise the heat produced. In the most extreme cases, desperate P-group informants resorted to untraditional sources of warmth, like wrapping themselves in blankets and lying on heated bathroom floors, using candles for heating, lighting the woodstove with construction wood, cardboard, and other flammable trash:

Female 28: I buy a lot of candles, so when it gets -15 C again, I just put candle lights everywhere and it warms a little bit – it does! ... I use lots of candles when the cold is at its worst. The only solution is to cut back on everything.

Despite their efforts, P-group informants expressed frustration and hopelessness in understanding and predicting electricity costs. Seeking to get better control over electricity expenses, several of them engaged in monitoring practices like checking electricity consumption in apps, asking their electricity provider about the costs of appliances, following weather forecasts and reading news about electricity prices. One person routinely touched the chimney to check if the downstairs neighbour was heating, as well as logging his own electricity consumption on a notepad. However, these methods were perceived as more useful for being mentally prepared for higher costs than actually coping or adapting.

Additionally, P-group informants often mentioned rationing electricity use other than heating: by only lighting rooms that were occupied, using computers and watching TV in the dark, shutting off technology to avoid stand-by mode, storing hot coffee in thermos flasks and using the washing machine only when full. However, they still had high electricity bills. A 44-year-old single parent explained how she had reduced electricity consumption by having apparatuses plugged in only while in use, using blankets to stay warm also when moving around at home, and heating only when her daughter returned from school. However, when she contacted her electricity supplier, she was told that her annual energy consumption of 18 000 kWh was almost the double of what would be expected from a dwelling and household of that size. This was due to poor energy efficiency. *Female 44:* ‘They told me it should be about 10 000 [kWh]. And we weren’t doing anything extreme, we were thrifty, you know.’

4.2.2 Trying to access additional capital

Several informants have needed additional financial support to manage their electricity expenses. The three informants with a level of employment were the most flexible, as they could work or search for an additional job in times of need. The 15 remaining informants must draw on their resources and competences to scrape by. They mention selling their belongings online, renting out the garage, selling Tupperware to friends and acquaintances, doing freelance journalism and cash-in-hand jobs like painting and helping the elderly. The partner of the 46-year-old informant had initiated a project of her own. As an immigrant with insufficient language skills, she had difficulties finding a job in Norway. To gain some financial independence, she started selling homemade meals at markets; however, the profits barely covered the costs of the ingredients and marketing expenses.

Male 46: We’ve been doing it for some weeks to try to get a little more income, so her daily life doesn’t look so f***ing much like slavery – you know, just being here at home, taking care of the kids and cooking ... But we see it as a long-term project, and maybe one day it will pay off. In any case, it’s important for her to be able to stand on her own feet, get out and do things. She’s a pretty active woman, and has found it hard, coming to Norway and then just sitting at home.

Informants drew on their social networks in various ways. P-group informants found it particularly important to receive loans and donations to pay bills and housing deposits from

people close to them. It is sometimes necessary to continue to participate in social activities. Asked whether or how living in a cold flat had consequences for her and her daughter, for health or wellbeing, Female 44 responded:

No, I've prioritised keeping it warm for her sake. The only thing is that it prevents us from doing other things. Now a grandmother has contributed to paying my daughter's leisure-time activities of my daughter, I couldn't have done that ... I've had family members who have made us feel that we aren't poor.

In two cases, informants had received donations from strangers up to €1200 after being open about their situation in local media and the social media.

Perhaps contrary to expectations, pensioners of the V-group reported benefitting from strong social networks that provided them with lower housing and living costs, instead of receiving financial support directly. They have friends who can support them with free firewood, electric radiators, groceries, help in managing their personal finances, doing the laundry as well as repairing home appliances. As noted, two elderly informants also enjoy stable and affordable rental costs, by renting from their grown offspring who have inherited and now own the parental home. Importantly, V-group informants did not express any negative feelings linked to receiving such support, whereas many younger informants feel ashamed and unworthy at being adults who still depend on their parents.

4.2.3 Adapting lifestyle while longing for a 'normal' life

P-group informants went to greater lengths in economising than the V-group. In winter, financial constraints forced them to prioritise between what was strictly necessary and not; they might stop getting haircuts, buying clothes or going out with friends and other social activities. In response to news of rising electricity prices. P-group informants saw food expenses as being more manageable on a daily basis – compared to electricity, which is billed once a month. They mentioned having acquired new skills, like preparing more food from scratch, cultivating produce at home, 'dumpster diving' or bulk shopping from cheaper, distant outlets. Additionally, they often eat less food, and of lower quality, or stop snacking and drinking alcohol completely. As put by *Male 36*: 'People like me [...] sit inside and freeze, feeling the cold, eating porridge nearly every day because that's all I can afford.' Two informants had to request free food from humanitarian organisations, in order to get by.

The great lengths these young informants go to in order to cope and adapt to high electricity costs involves a lifestyle that fluctuates in quality from summer to winter. Many P-group informants try to keep 'performing normality' – resulting in mental conflict between basic, material needs and the need to 'be normal'. Particularly the younger informants feel socially excluded during the winter.

Female 38: I buy less food. [...] I prioritise my spending, so as to [appear to] have a normal life, as a normally functioning person just like everyone else... I must pay for my leisure-time activities, I'd like to go to a café and have coffee, I'd like to eat out every now and then, buy make-up – live a normal life. I'm 40 years old and I'd like to be a normal person. But with a food budget way below what normal people probably spend, this works out during the summer, but not in winter.

However, members of the largely senior-citizen V-group are not forced to compromise as much on material and social needs: they are more concerned with adequate heating. They often link their financial priorities regarding what expenses are necessary to being economical and accustomed to leading a modest lifestyle after longer periods of financial constraints. They have internalised living a modest lifestyle, mostly staying at home, socialising mainly with close family, and having low living expenses. *Female 72*, linked this to her own upbringing:

I had to learn. We were eight children and were never rich or comfortably well-off. I've learned to live according to my means. When you're not a millionaire, you're used to setting priorities. I might let go occasionally – travelling or doing silly things, buy clothes, go out for dinner at a restaurant.

4.3 Implications of energy poverty

Energy poverty has various implications for wellbeing. Informants experience negative mental and physical health effects as a result of cold dwellings and high electricity prices. These effects may have further practical implications, worsening their financial situation, reducing their capacity to do everyday chores and care for the family – leading to social isolation.

4.3.1 Health implications

Our informants report that living in cold dwellings has negative physical health implications such as cold temperatures leading to falling ill, but also second-order challenges like being unable to access sufficient health services [59]. This is consistent with findings from other studies on health and energy poverty – both in terms of general findings but also stronger links between energy poverty and negative health effects being reported from subjective indicators of energy poverty [60,61]. As only three of the informants have outside employment, most of our informants are increasingly exposed to inadequate heating due to spending more time at home. Additionally, approximately half of our informants are especially vulnerable to inadequate heating due to aging or chronic illness. The pensioners frequently mention feeling cold more often as they get older, with cramps and arthritis-related pain induced by cold temperatures. *Female 98*: 'It hurts so! I feel so much pain that I scream into the night.' These indications correspond well with other research, where age is commonly found to further aggravate the effect of energy poverty on general health in other research [20,60,61].

A few P-group informants suffering from chronic muscle disease mentioned how they often suffered following exposure to cold.

Female 58: 'Most people say that they just wrap up when they get cold, but I get ill, I get flu-like symptoms. And then I begin to ache – being in pain makes you terribly tired. So, winters are tough, things would've been better if it were warmer in here.'

Our informants reported that the temperature-related health consequences had ripple effects – financial and social consequences like being unable to work, to do daily chores and care for the family, something that has been found in other countries too [20,62]. One informant with a job, a 47-year-old woman, must work nearly 140% to support her two children and chronically ill husband. She must reorganise her day when her husband becomes unwell:

Female 47: He's got a weak immune system. It takes much longer for him to get well than for me and you. Everything takes more time when he's ill. Then he can't do the things he should do, like accompanying the kids to activities. So I have to swap shifts at work to make things go.

Several of the informants pointed to health-related dilemmas like having to cut back on food to keep the temperatures bearable, a similar finding from other energy poverty research [21,63]. Energy poverty was also reported to have mental-health implications like depression and anxiety, especially for those who feel they have little control over rising electricity costs and their financial situation [4,20,61]. They find it time-consuming and mentally exhausting to be constantly aware of the accumulating energy costs – time and energy they would have rather spent socialising or trying to obtain social benefits. Asked how she had felt during the winter before the interview was conducted, Female 28 responded:

Depressed, as simple as that [...] It affects you in all areas. You feel that you can't even turn the lights on, because you know that during the winter months they raise the prices [...].

4.3.2 Social implications

Our informants experienced negative emotions like embarrassment and shame linked to coping with living in cold, dark dwellings. Particularly those in the P-group feel the unfairness of having to compromise on material and social needs.

Female 28: Basically, it's embarrassing, I think it's embarrassing to talk about, to admit that electricity prices and turning on the heat are things you can't afford. They're problems you think that most other people don't have.

The feeling of social stigma connected to 'different' energy practices is not new, also beyond energy poverty [39]. This might be even more stigmatising when it is not chosen freely. Some informants see having a cold dwelling as deviant, contrary to prevalent norms of hospitality, and therefore as unsuitable for entertaining. They find that guests are often not prepared for how cold the flat is, even if they have been told beforehand. These informants feel ashamed of making their guests do things like bundling up in extra clothing and blankets to stay warm when they visit.

Female 69: I don't like to have guests during the winter, because it's too cold. It's problematic ... I try to avoid it. It's hard to maintain comfortable temperatures when people come and aren't prepared ... I get stressed, I don't like it when people think it's too cold or can't get comfortable....

Such feelings may lead to further marginalisation [59]. Having internalised norms of hospitality such as heating for guests, informants feel they must choose between higher energy costs or to spending more time in isolation. One 58-year-old woman suffering from chronic muscle illness received an electricity bill of €300, despite limited heating and 15°C indoor temperatures. To cut costs, she saw no other choice than to isolate herself, turning off all lights and heating, and spending days and evenings in bed with her PC, with an electric blanket and her dog.

Female 58: The neighbours were wondering, you know. It was so dark in here. It was so dark during the evening, I had to go up to the bedroom ... People asked, 'What's going on? it's so dark at 18 o'clock.' I said, 'Yes, then I go up to the bedroom, because I can't afford heating.' I was completely open about that.

The more the informants worry about how other people feel, and compromise on material and social needs to scrape by, the more do they tend to feel socially excluded, something that is found also in previous studies [59]. One interviewee felt that she dropped downwards in the social hierarchy by having to depend on others for subsistence: 'I never thought that I'd would end up, having to ask for help to get food.' P-group informants often link their feelings of belonging to a socially dominant class to the widespread perception of Norway as rich and socio-economically egalitarian. They feel that most people believe the welfare state will take care of any problems, and see others as being responsible for their own misery and not bothering to seek help – as if these less-fortunate ones not been struggling for years to get their social welfare entitlements. These informants often felt that 'the others out there' cannot understand the situation they are in.

Male 46: In Norwegian society, those who struggle are held responsible – *it's your fault! Look, we live in a perfect society, just walk around, look at global statistics – we're on top.* So, you're not allowed *not* to feel good, you'll be considered a freak. I think that's deeply embedded in the subconsciousness of the Norwegian soul.

5. Analysing household practices: locked in vulnerability?

Here we draw on concepts from practice theory to analyse qualitatively the various dimensions of being vulnerable to energy poverty as shown by our findings. We use Bourdieu's concepts of fields and capitals to analyse how different positions occupied by our informants are linked to having differing capacity for coping with energy poverty, and experiencing different feelings about their situation. To understand the strategies applied by our informants and the emotions they experience, we also consider their material situation like financial stability, housing situation as tenants or owners, and their dependency on electricity, as well as their social status and available social capital.

5.1. Accessing employment and financial independence

Unlike the V-group, informants in the P-group are especially vulnerable to instability in electricity prices, because they depend on unpredictable social benefit entitlements as their main source of income. Their financial independence hinges on the formalities and procedures of the welfare system. This often involve gaps between what they themselves perceive as urgent need for help, and what the state recognizes as their 'real' needs – representing a barrier for increased economic capital though for example AAP. These informants must submit to the bureaucratic doxa of 'show patience, wait, and you might obtain a benefit from the state' [64] – involving years of applications, work-capability testing and sometimes gaining an entitlement at the expense of someone else. We also find that social benefit recipients affected by energy poverty typically have limited opportunities for employment or controlling their income: they often yearn for the

independence and flexibility a stable income can provide [6]. In other words, making potential recipients of social benefits wait in uncertainty might not be a sensible way of making them active citizens [64].

In addition to being financially vulnerable from a material perspective, P-group informants are in a highly disempowered social situation. They feel stigmatised by being held responsible for their status, sometimes with implicit assumptions that they are too lazy to work and expect the welfare system to provide the necessary help. The unemployed informants – often in the P-group – are excluded from society's 'productive' individuals, from those who transform competences, networks, resources into productive contributions to society, and who enjoy other types of capital often linked to this. The stigma is not because they have less-prestigious employment, but because they are seen as not contributing to society. It appears to be expected that they have a career of some sort – whereas they are positioned outside of the field of careers, a large field containing virtually all those who are employed or have a career [65]. This explains a key difference between the P-group informants, and the pensioners in the V-group, a point further supported by a study in which over 70% of respondents linked stigma to receiving social benefits in Norway, but rarely linked it to receiving a pension [66].

5.2. The socio-materiality of housing

Although all our informants' housing choices are restricted by lack of economic capital, forcing those in the P-group to rent their dwellings. This leads to forced participation in the social field of tenancy, and increasingly feeling 'locked' in energy-inefficient housing and with implications for the costs and ease at which they can maintain comfortable indoor temperatures. The P-group tenants suffer the most from poorly insulated, draughty accommodation. Even if they could afford the necessary energy improvements, they are limited by their situation as tenants, reducing their agency further. Tenants in the P-group are often concerned that they may have to move before their own investments reap benefits, or, if the landlord were to invest, the rent would increase. Nor is there any guarantee that moving will lead to better housing [4,6] This divergence in the interests of landlords and tenants restricts our informants' chances of getting energy-efficient housing, as well as the practices they are able to perform [67]. Therefore, the most sensible choice for this group is simply to establish practices to best cope with the costs and chill of life in an energy-inefficient dwelling. And that means few ways out of energy poverty.

Social capital is important to households that suffer energy poverty, as it can provide mobility as regards housing. Recipients of social benefits (again the P-group) are marginalised in the housing market, as landlords prefer students and employed persons as tenants. The status as recipients of social benefits entails negative symbolic capital that adversely affects their social position as well as mobility possibilities in the field of housing [68].

Two of the retirees in the V-group have agreed to have their adult offspring inherit the house while continuing to occupy parts of it, enjoying the privileges of a social network, higher social capital, far less marginalisation and more stability in their housing situation. All that further enables energy improvements. Like 'super-tenants', these informants virtually convert their social capital as parents into receiving accommodation by entitlement, not because they pay the rent. This is in line with previous research, showing that parents may provide their adult children with outside-of-the-market housing [68], indicating that it may also provide benefits in the other direction: by reducing challenges with energy poverty.

5.3. The social margins of electricity prices

As they are largely electricity-dependent households, P-group informants are especially vulnerable to rising electricity prices. Cold weather means expense shocks that can flip them into perceived energy poverty [63]. Their elaborate coping strategies show how energy practices are connected in 'bundles': 'loose-knit patterns based on the co-location and coexistence of practices' [32]. In addition to their co-location, electricity practices are for these informants bundled by being billed together. Forced to limit their electricity consumption in order to scrape by, P-group informants often feel shame at having to practise coping strategies perceived as demonstrating their low social status [34]. Avoiding such shame requires compromising on other matters, like turning up the heating for guests, or social withdrawal to avoid appearing as 'energy-poor' [23]. It would be wrong to consider the various coping strategies that energy-poor households engage in simply as modest lifestyle choices: they are 'brutal necessities' involving a wide range of negative mental-health consequences, including shame, embarrassment, anxiety stress and depression [3,59,69]. While status is often associated with practices that conspicuously manifest wealth or taste, living in a cold dwelling and having to wear extra layers of clothing to stay warm are expressions of poverty [39]. Studies have shown that hosts in Norway will turn up the thermostat before guests arrive to ensure against the 'social crisis' of a guest not being comfortable [12].

There is an ongoing redefinition of 'normal practice' in the Western world, where expectations of indoor temperatures are changing to increase energy use [70]. As P-group informants feel frustrated by their inability to afford enough energy use to satisfy 'normal' material and social needs, we may expect this problem to grow with the distance between their coping strategies and what is regarded as 'normal' consumption of energy. With household dependency on electricity increasing for several years [71], combined with rising price-levels, households in Norway are likely to experience greater vulnerability to energy poverty. Amplified by growing general inequalities and increasing relative deprivation in Norway [26], and likely amplified by rising electricity prices, this will make those in an already difficult situation even more socially vulnerable.

Rising electricity costs have wide-ranging lifestyle implications beyond limiting energy use for already-challenged households. As energy practices are bundled with food and social practices, the need to compromise on food consumption and social activities can be seen as affecting people's 'savings accounts' for energy [3,59,63,72,73]. The lack of economic and social capital of the P-group means they sooner than the V-group will have to give up food and other practices, with ramifications for participation in social fields. The social practices relinquished in winter continue to exist in their consciousness as entities [32], making them experience a gap between their life of coping and internalised norms of 'normality' being a part of society. These informants do not dream of a luxurious life: they have modest aspirations of living 'normal' lives. Some practices are assumed to be 'improbable' and excluded [4,74]. For those in our P-group with multiple burdens – financial constraints, high energy costs, energy inefficient housing and long-term health problems – leading a more modest lifestyle may become a necessary coping strategy, not a deliberate choice [4].

5.4. Leeway for skilful economising

Having a woodstove is a clear example of how material infrastructure like heating flexibility has implications for practices and costs [75]. Being able to heat with firewood gives the V-group informants greater control, as they can stock up on cheap firewood before the winter (given access to economic capital), as well as assistance through free firewood from friends, family and NGOs. Additionally, several informants described the heat produced by woodstoves as preferable, a subjective dimension usually not emphasised in the literature [62]. In these instances, they have effectively ‘unbundled’ heating practices from other electricity uses like lighting and cooking, giving them leeway to adapt to fluctuating electricity costs – indeed, these households were rarely concerned with cutting energy costs beyond heating.

Despite their modest lifestyle, V-group respondents rarely expressed negative feelings about having to cope with inadequate heating [62]. They appear to have adopted an ethic of frugality, framing economising positively and taking pride in skilful management of their finances [76]. They often spoke of their modest lifestyle as sensible, wise use of their finances, rather than a brutal necessity, echoing other findings [76]. It is logical that those in the V-group – consisting mainly of older persons – are less frustrated than the P-group, as also less-affluent households in Norway tend to experience relatively few welfare problems as they age [77]. However, we know that coping strategies differ [3], and it may be that the V-group informants frame energy-saving practices positively as an ethical project, in order to avoid stigma or being framed as ‘poor’ [39]. That would be more difficult for P-group interviewees who struggle to live ‘normal’ lives.

5.5. Social capital in the family

The different feelings experienced by the two groups must also be understood in light of the different social networks they draw on to get through the winter: this must be seen in terms of access to, as well as type of the social networks. P-group informants who depend on their parents’ experience feelings of indignity and unworthiness, whereas pensioners express no such concerns: they occupy a different position within the family field. This is consistent with arguments that position within a context can determine feelings of indignity [78]. We argue that the child–parent relationship is organised around a family-specific doxa whereby an authoritative parent places the child ‘in debt’ by investing time and love in caring for and raising him or her [79]. Thus, P-group respondents experience the help they receive from parents as dependency, while the pensioners perceive it as delayed reciprocity. This shows the importance of understanding energy poverty in the context of a larger social system where households draw on social networks to survive [6]. Understanding emotions in relation to the quality of social capital, we see that persons from energy-poor households may incur social capital debt. This nuances the argument that energy-poor households with greater social capital have less difficulty managing their lives under difficult conditions than those without such access [4].

6. Conclusions

This article has explored what it means for households in Norway to experience energy poverty. We have investigated various vulnerabilities to energy poverty in a country with highly electrified

households. Using concepts from practice theory to analyse interviewees from 17 households, and responding to the call for deeper understanding of these factors in the literature [23,24] we have, with a starting point of Bordieuan social fields and material and social capitals, added perspectives on the emotional, social and practical dimensions of energy poverty.

Informants were divided into two groups with clear commonalities. The one group (P-group), mostly consisting of social benefit recipients under 60 years of age, were particularly vulnerable to energy poverty, by being electricity-dependent, having unstable low incomes, renting energy-inefficient housing and having to depend on parents also in adulthood. The other group (V-group) mainly comprised pensioners, had greater opportunities for managing their situation: they had stable incomes, could draw on multiple energy sources, were in a better, more stable housing situation and could also draw on a network of younger family members to help with energy-related issues.

The findings from these groups show that both economic and social capital are significant for influencing their housing and then energy vulnerability. The V group can draw on capital from family and more often own their dwellings, while P-group members feel discriminated against in the social field of renting market. They also felt stigmatized by being in a situation of 'forced' tenancy and depend on social benefits.

While we do not know the extent of the findings, we know that the reported phenomena occurs with energy poor in Norway. Moreover, our findings aligns with previous research: financial vulnerability to energy poverty must not be understood solely in terms of income size: the stability of income payments is also important [6]. Further, we find that these households does not benefit from welfare benefits intended to help households with low incomes and high housing costs. We also observe that emotions further marginalise energy poverty: households feel that they must turn up the heating for guests. We further find alignment with previous research in indications that the elderly are less inclined to express negative feelings at having to cope with energy poverty [62]. We expand on earlier observations of the importance of possessing sizeable social capital to manage energy poverty: the *quality* of social capital is important to whether receiving support is experienced negatively or not [4].

Households dependent on electricity, without the possibility of using other fuels, show additional vulnerability. Being unable to shift to cheaper energy sources when energy prices rise adds to other vulnerability factors noted in the literature [3,5,62,63]. Lack of transport for alternative fuels adds additional limitations to manage – adding transport poverty issues to their already marginalised situation. As electrification remains a dominant decarbonisation strategy in European countries, there is a risk that unchecked power prices and pressure on removing alternative energy carriers may lead to larger problems, moving more households into a situation of energy poverty, or fluctuate in- and out of a precarious situation. Furthermore, an important political measure for addressing energy poverty would be to design more targeted housing expenses assistance with vulnerable households. These should, however, be assisted by the development of official metrics and definition of energy poverty for Norway, to have higher accuracy to those in need. Such official measures are currently non-existing.

To achieve a just energy transition, policy must take into consideration how infrastructural processes have negative implications for households in energy poverty. Targeted social measures

must reach households in energy poverty – and energy-improvement programmes must be available to recipients of social benefits and to those in rented accommodation.

Further research should analyse whether our results can be tested, perhaps through statistical research, and the links to other vulnerabilities – for other wealthy, electricity-dependent countries as well as households in other life situations and cultural contexts. Given the EU requirements for all member-states to report on energy poverty [8], this may further inform quantifiable metrics on the extent of energy poverty across European countries, enabling comparisons across jurisdictions. Further study is needed on households consisting of families, collectives, and groups of persons with minority backgrounds and varying employment status. The Norwegian case can bring particular insights on energy poverty in a context of high electricity dependency, which is likely to increasingly be the case also for other countries in Europe and beyond, with the ongoing energy transitions. Lastly, a much-needed area for research concerns perceptions of justice, implications for electrification strategies, and links to energy poverty.

Literature

- [1] H. Thomson, S. Bouzarovski, Addressing Energy Poverty in the European Union: State of Play and Action, EU Energy Poverty Observatory, 2018. https://www.energypoverty.eu/sites/default/files/downloads/publications/18-08/paneureport2018_final_v3.pdf.
- [2] A. Ambrose, W. Baker, G. Sherriff, J. Chambers, Cold comfort: Covid-19, lockdown and the coping strategies of fuel poor households, *Energy Reports*. 7 (2021) 5589–5596. <https://doi.org/10.1016/j.egyr.2021.08.175>.
- [3] A. Stojilovska, H. Yoon, C. Robert, Out of the margins, into the light: Exploring energy poverty and household coping strategies in Austria, North Macedonia, France, and Spain, *Energy Res. Soc. Sci.* 82 (2021) 102279. <https://doi.org/10.1016/j.erss.2021.102279>.
- [4] K.-M. Brunner, M. Spitzer, A. Christanell, Experiencing fuel poverty. Coping strategies of low-income households in Vienna/Austria, *Energy Policy*. 49 (2012) 53.
- [5] N. Longhurst, T. Hargreaves, Emotions and fuel poverty: The lived experience of social housing tenants in the United Kingdom, *Energy Res. Soc. Sci.* 56 (2019) 101207. <https://doi.org/10.1016/j.erss.2019.05.017>.
- [6] L. Middlemiss, R. Gillard, Fuel poverty from the bottom-up: Characterising household energy vulnerability through the lived experience of the fuel poor, *Energy Res. Soc. Sci.* 6 (2015) 146–154. <https://doi.org/10.1016/j.erss.2015.02.001>.
- [7] L. Middlemiss, P. Ambrosio-Albalá, N. Emmel, R. Gillard, J. Gilbertson, T. Hargreaves, C. Mullen, T. Ryan, C. Snell, A. Tod, Energy poverty and social relations: A capabilities approach, *Energy Res. Soc. Sci.* 55 (2019) 227–235. <https://doi.org/10.1016/j.erss.2019.05.002>.
- [8] European Commission, Clean energy for all Europeans package, (2021). https://ec.europa.eu/energy/topics/energy-strategy/clean-energy-all-europeans_en (accessed January 3, 2022).

- [9] A.C. Bøeng, På verdenstoppen i bruk av strøm, *Samfunnsspeilet*. 4 (2014). https://www.ssb.no/energi-og-industri/artikler-og-publikasjoner/_attachment/200772?_ts=149086a42b0.
- [10] SSB, *Energibruk i husholdningene, 2020* (2014). <https://www.ssb.no/husenergi>.
- [11] ODYSSEE-MURE, *Electricity consumption per dwelling in EU countries, Norway and the UK*, (2021). <https://www.odyssee-mure.eu/publications/efficiency-by-sector/households/electricity-consumption-dwelling.html> (accessed April 29, 2021).
- [12] H. Wilhite, L. Lutzenhiser, *Social Loading and Sustainable Consumption*, *Adv. Consum. Res. Assoc. Consum. Res.* 26 (1999) 281–287.
- [13] S. Sareen, H. Thomson, S. Tirado Herrero, J.P. Gouveia, I. Lippert, A. Lis, *European energy poverty metrics: Scales, prospects and limits*, *Glob. Transitions*. 2 (2020) 26–36. <https://doi.org/10.1016/j.glt.2020.01.003>.
- [14] S. Bouzarovski, *Energy Poverty: (Dis)Assembling Europe's Infrastructural Divide*, Palgrave, London, 2018. <https://doi.org/10.1007/978-3-319-69299-9>.
- [15] A. Rodriguez-Alvarez, M. Llorca, T. Jamasb, *Alleviating energy poverty in Europe: Front-runners and laggards*, *Energy Econ.* 103 (2021) 105575. <https://doi.org/10.1016/j.eneco.2021.105575>.
- [16] S. Bouzarovski, *Energy poverty in the European Union: Landscapes of vulnerability*, *Wiley Interdiscip. Rev. Energy Environ.* 3 (2014) 276–289. <https://doi.org/10.1002/wene.89>.
- [17] EPSU and EAPN, *Right To Energy For All Europeans!*, Brussel, 2017. <https://www.eapn.eu/wp-content/uploads/2017/05/EAPN-2017-EAPN-EPSU-energy-poverty-leaflet-1138.pdf>.
- [18] European Energy Network, *EnR Position Paper on Energy Poverty in the European Union*, Rome, 2019. <http://enr-network.org/wp-content/uploads/ENERGYPOVERTY-EnRPositionPaper-Energypoverty-Jan-2019.pdf>.
- [19] SSB, 12079: *Material deprivation, by income group 2017 - 2020*. Statbank Norway, (2021). <https://www.ssb.no/en/statbank/table/12079/> (accessed December 1, 2021).
- [20] L. Oliveras, es Peralta, L. Pal, M. Jos, L. Artazcoz, C. Borrell, M. Marí-Dell, *Energy poverty and health: Trends in the European Union before and during the economic crisis, 2007-2016*, *Health Place*. 67 (2021) 1353–8292. <https://doi.org/10.1016/j.healthplace.2020.102294>.
- [21] A. Maxim, C. Mihai, C.M. Apostoaie, C. Popescu, C. Istrate, I. Bostan, *Implications and measurement of energy poverty across the european union*, *Sustain.* 8 (2016) 1–21. <https://doi.org/10.3390/su8050483>.
- [22] K. Van Wormer, *A Society without Poverty: The Norwegian Experience*, *Soc. Work.* 39 (1994) 324–327. <https://doi.org/10.1093/sw/39.3.324>.
- [23] N. Longhurst, T. Hargreaves, *Emotions and fuel poverty: The lived experience of social housing tenants in the United Kingdom*, *Energy Res. Soc. Sci.* 56 (2019) 101207. <https://doi.org/10.1016/j.erss.2019.05.017>.
- [24] L. Middlemiss, R. Gillard, V. Pellicer, K. Straver, *Plugging the gap between energy policy and the lived experience of energy poverty: five principles for a multi-disciplinary approach*,

- in: C. Foulds, R. Robison (Eds.), *Adv. Energy Policy Lessons Integr. Soc. Sci. Humanit.*, Springer International Publishing, 2018. internal-pdf://209.221.167.94/Kap 2 Plugging the Gap Between Energy Policy a.pdf.
- [25] OECD, Income inequality, (2020). <https://data.oecd.org/inequality/income-inequality.htm>.
- [26] R. Aaberge, M. Mogstad, O.L. Vestad, A. Vestre, *Økonomisk ulikhet i Norge i det 21. århundre*, Oslo, 2021.
- [27] E.K. Gubrium, "Then" and "now": literary representation of shame, poverty and social exclusion in Norway, in: E. Chase, G. Bantebya-Kyomuhendo (Eds.), *Poverty Shame Glob. Exp.*, Oxford University Press, 2015, Oxford, 2015: p. [99]-110.
- [28] SSB, *Dette er Norge 2021*, Oslo, 2021.
- [29] OED, St.meld 36 (2020-2021). *Energi til arbeid - langsiktig verdiskaping fra norske energiresurser*, Oslo, 2021.
- [30] OED, White Paper, Meld.St. 11 (2021-2022). *Tilleggsmelding til Meld. St. 36 (2020-2021) Energi til arbeid - langsiktig verdiskaping fra norske energiresurser*, Oslo, 2022.
- [31] A. Reckwitz, Towards a theory of social practices - a development in cultural theorizing, *Eur. J. Soc. Theory.* 5 (2002) 243-264. internal-pdf://237.69.52.41/Reckwitz - Toward a Theory of Social Practices.pdf.
- [32] E. Shove, M. Pantzar, M. Watson, *The Dynamics of Social Practice: Everyday Life and How It Changes*, SAGE, London, 2012.
- [33] A.K. Hess, I. Schubert, R. Samuel, P. Burger, Changing routinized household energy consumption using the example of washing, cooking, and standby: A randomized controlled field experiment of home energy advice, *Clean. Responsible Consum.* 4 (2022). <https://doi.org/10.1016/j.clrc.2022.100052>.
- [34] P. Bourdieu, *Distinksjonen : en sosiologisk kritikk av dømmekraften*, *La Distinct.* (2002).
- [35] P. Bourdieu, THE FORMS OF CAPITAL, in: J. Richardson (Ed.), *Handb. Theory Res. Sociol. Educ.*, Westport, CT, Greenwood, 1986: pp. 241-58.
- [36] P. Thomson, Field, in: M. Grenfell (Ed.), *Pierre Bourdieu Key Concepts*, Acumen, Durham, 2008.
- [37] E.M. Power, An Introduction to Pierre Bourdieu's Key Theoretical Concepts, *J. Study Food Soc.* 3 (1999) 48-52. <https://doi.org/http://dx.doi.org/10.2752/152897999786690753>.
- [38] R.E. Dwyer, Making a Habit of It: Positional Consumption, Conventional Action and the Standard of Living, *J. Consum. Cult.* 9 (2009) 328-347. <https://doi.org/10.1177/1469540509341773>.
- [39] S.K. Hards, Status, stigma and energy practices in the home, *Local Environ.* 18 (2013) 438-454. <https://doi.org/10.1080/13549839.2012.748731>.
- [40] H. Thomson, S. Bouzarovski, C. Snell, Rethinking the measurement of energy poverty in Europe: A critical analysis of indicators and data, *Indoor Built Environ.* 26 (2017) 879-901. <https://doi.org/10.1177/1420326X17699260>.

- [41] S. Bouzarovski, S. Petrova, R. Sarlamanov, Energy poverty policies in the EU: A critical perspective, *Energy Policy*. 49 (2012) 76–82. <https://doi.org/10.1016/j.enpol.2012.01.033>.
- [42] M. Feenstra, *Gender Just Energy Policy: Engendering the energy transition in Europe*, Twente University, 2021.
- [43] D. Roberts, E. Vera-Toscano, E. Phimister, Fuel poverty in the UK: Is there a difference between rural and urban areas?, *Energy Policy*. 87 (2015) 216–223. <https://doi.org/10.1016/j.enpol.2015.08.034>.
- [44] B.K. Sovacool, J. Axsen, S. Sorrell, Promoting novelty, rigor, and style in energy social science: Towards codes of practice for appropriate methods and research design, *Energy Res. Soc. Sci.* 45 (2018) 12–42. <https://doi.org/10.1016/j.erss.2018.07.007>.
- [45] R. Galvin, How many interviews are enough? Do qualitative interviews in building energy consumption research produce reliable knowledge?, *J. Build. Eng.* 1 (2015) 2–12. <https://doi.org/10.1016/j.jobbe.2014.12.001>.
- [46] B. Halkier, I. Jensen, Methodological challenges in using practice theory in consumption research. Examples from a study on handling nutritional contestations of food consumption, *J. Consum. Cult.* 11 (2011) 101–123. <https://doi.org/10.1177/1469540510391365>.
- [47] T. Hargreaves, M. Nye, J. Burgess, Making energy visible: A qualitative field study of how householders interact with feedback from smart energy monitors, *Energy Policy*. 38 (2010) 6111–6119. <https://doi.org/10.1016/j.enpol.2010.05.068>.
- [48] K. Grossmann, G. Jigla, U. Dubois, A. Sinea, F. Martín-Consuegra, M. Dereniowska, R. Franke, R. Guyet, A. Horta, F. Katman, L. Papamikrouli, R. Castaño-Rosa, L. Sandmann, A. Stojilovska, A. Varo, The critical role of trust in experiencing and coping with energy poverty: Evidence from across Europe, *Energy Res. Soc. Sci.* 76 (2021) 102064. <https://doi.org/10.1016/j.erss.2021.102064>.
- [49] NAV, Work assessment allowance (AAP), 2020 (2020). <https://www.nav.no/en/home/benefits-and-services/relatert-informasjon/work-assessment-allowance-aap>.
- [50] T.H.J. Inderberg, Advanced metering policy development and influence structures: The case of Norway, *Energy Policy*. 81 (2015) 98–105. <https://doi.org/10.1016/j.enpol.2015.02.027>.
- [51] SSB, 09387: Kraftpris, nettleie og avgifter for husholdninger, etter kvartal. Kraft og nett i alt inkl. avgifter (øre/kWh).. Statistikkbanken, (n.d.). <https://www.ssb.no/statbank/table/09387/chartViewLine/> (accessed March 25, 2022).
- [52] SSB, 09895: Rental market survey. Average monthly rents and annual rents per sqm, by price zone and number of rooms (NOK) 2012 - 2021. Statbank Norway, (2022). <https://www.ssb.no/en/statbank/table/09895> (accessed June 24, 2022).
- [53] C. Lowans, D. Furszyfer, D. Rio, B.K. Sovacool, D. Rooney, A.M. Foley, What is the state of the art in energy and transport poverty metrics? A critical and comprehensive review, *Energy Econ.* 101 (2021) 105360. <https://doi.org/10.1016/j.eneco.2021.105360>.
- [54] S. Sareen, M. Waage, P. Smirnova, J. Boakye-Botah, M. Ryen Loe, Double energy

- vulnerability in the Norwegian low-carbon urban transport transition, *People, Place and Policy Online*. (2022) 1–20. <https://doi.org/10.3351/ppp.2022.3953567323>.
- [55] SSB, *Inntekts- og formuesstatistikk for husholdninger*, *Income Stat. Norw.* (2021). <https://www.ssb.no/inntekt-og-forbruk/inntekt-og-formue/statistikk/inntekts-og-formuesstatistikk-for-husholdninger> (accessed January 3, 2022).
- [56] Eurostat, *Glossary: At-risk-of-poverty rate - Statistics Explained*, (2021). https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:At-risk-of-poverty_rate (accessed January 3, 2022).
- [57] N. DellaValle, S. Sareen, *Nudging and boosting for equity? Towards a behavioural economics of energy justice*, *Energy Res. Soc. Sci.* 68 (2020). <https://doi.org/10.1016/j.erss.2020.101589>.
- [58] M. Martiskainen, B.K. Sovacool, M. Lacey-barnacle, D. Hopkins, K.E.H. Jenkins, N. Simcock, G. Mattioli, S. Bouzarovski, *New Dimensions of Vulnerability to Energy and Transport Poverty*, *Joule*. (2021) 1–5. <https://doi.org/10.1016/j.joule.2020.11.016>.
- [59] C. Porto Valente, A. Morris, S.J. Wilkinson, *Energy poverty, housing and health: the lived experience of older low-income Australians*, *Build. Res. Inf.* 0 (2021) 1–13. <https://doi.org/10.1080/09613218.2021.1968293>.
- [60] S.A. Churchill, R. Smyth, *Energy poverty and health: Panel data evidence from Australia*, (2021). <https://doi.org/10.1016/j.eneco.2021.105219>.
- [61] M. Llorca, A. Rodriguez-Alvarez, T. Jamasb, *Objective vs. subjective fuel poverty and self-assessed health*, *Energy Econ.* 87 (2020). <https://doi.org/10.1016/j.eneco.2020.104736>.
- [62] R. Chard, G. Walker, *Living with fuel poverty in older age: Coping strategies and their problematic implications*, *Energy Res. Soc. Sci.* 18 (2016) 62–70. <https://doi.org/10.1016/j.erss.2016.03.004>.
- [63] T.K.M. Beatty, L. Blow, T.F. Crossley, *Is there a 'heat-or-eat' trade-off in the UK?*, *J. R. Stat. Soc. Ser. A (Statistics Soc.* 177 (2011) 281–294. <https://doi.org/10.1111/rssa.12013>.
- [64] J. Auyero, *Patients of the state: An Ethnographic Account of Poor People's Waiting*, *Lat. Am. Res. Rev.* 46 (2011) 5–29. <https://doi.org/10.1353/lar.2011.0014>.
- [65] A. Iellatchitch, W. Mayrhofer, M. Meyer, *Career fields: a small step towards a grand career theory?*, *Int. J. Hum. Resour. Manag.* 14 (2003) 728–750. <https://doi.org/10.1080/0958519032000080776>.
- [66] C.A. Larsen, *The institutional logic of welfare attitudes : how welfare regimes influence public support*, Routledge, London, England, 2016.
- [67] D. Lister, *Controlling Letting Arrangements in the Private Rented Sector?*, in: D. Hughes, S. Lowe (Eds.), *Priv. Rented Hous. Mark. - Regul. or Deregul.*, Ashgate Publishing Limited, Aldershot, 2017: pp. 69–84.
- [68] E.B. Silva, D. Wright, *Displaying Desire and Distinction in Housing*, *Cult. Sociol.* 3 (2009) 31–50. <https://doi.org/10.1177/1749975508100670>.
- [69] C. Liddell, *Fuel poverty comes of age: commemorating 21 years of research and policy*, *Energy Policy.* 49 (2012) 2–5. [internal-pdf://78.208.27.138/Liddell 2012 - Fuel poverty comes of age - Com.pdf](https://doi.org/10.1016/j.enpol.2012.07.013).

- [70] E. Shove, Converging Conventions of Comfort, Cleanliness and Convenience, *Consum. Issues Law, Econ. Behav. Sci.* 26 (2003) 395–418. <https://doi.org/10.1023/A:1026362829781>.
- [71] Ny analyse, *Energibruk mot 2025: Strømregningen og bruk av ved*, Oslo, 2014. <https://kommunikasjon.ntb.no/data/attachments/00005/7140c216-19e4-4f06-bd52-b2d89484299a.pdf>.
- [72] C.N.B. Grey, T. Schmieder-Gaite, S. Jiang, C. Nascimento, W. Poortinga, Cold homes, fuel poverty and energy efficiency improvements: A longitudinal focus group approach, *Indoor Built Environ.* 26 (2017) 902–913. <https://doi.org/10.1177/1420326X17703450>.
- [73] H. Lambie-Mumford, C. Snell, *Heat or eat: Food and austerity in rural England: Final Report*, Communities and Culture Network, Leeds, 2015. <http://eprints.whiterose.ac.uk/114808/>.
- [74] P. Bourdieu, *Outline of a Theory of Practice*, Cambridge University Press, 1977.
- [75] N. Willand, C. Maller, I. Ridley, “It’s not too bad” - The Lived Experience of Energy Saving Practices of Low-Income Older and Frail People, 121 (2017) 166–173. <https://doi.org/10.1016/j.egypro.2017.08.014>.
- [76] W. Anderson, V. White, A. Finney, Coping with low incomes and cold homes, *Energy Policy.* 49 (2012) 40–52. <https://doi.org/10.1016/j.enpol.2012.01.002>.
- [77] SSB, *Dette er Norge 2019*, Oslo, 2019.
- [78] K. Grossmann, E. Trubina, *Dignity in Urban Geography: Starting a Conversation*, *Dialogues Hum. Geogr.* (2022) 204382062210756. <https://doi.org/10.1177/20438206221075697>.
- [79] W. Atkinson, A sketch of ‘family’ as a field: From realized category to space of struggle, *Acta Sociol.* 57 (2014) 223–235. <https://doi.org/10.1177/0001699313511470>.

Appendix 1: Interview guide

Daily life

- How long have you been living here?
- Do you live here with other people or pets?
- How comfortable are you living here?
- What does a typical day look like?
- What kinds of challenges do you experience related to electricity and energy use?
- Do you think a lot about electricity use?
 - What appliance(s) consume(s) the most electricity in your home?
- What do you do to cope when your home gets cold?

Dwelling

- To what degree have you had problems in heating your current dwelling?
 - poor insulation
 - draught
 - leaks
 - rot

Electricity bill

- What kind of electricity plan do you have?
 - How often does the electricity bill come?
- Do you normally know how much it will be?
- How closely do you study the bill?
 - electricity consumption, grid tariffs
- What do you feel when the electricity bill arrives?
- How do you manage an unexpectedly high bill?
 - friends
 - family
 - formal loan
 - sell something
 - state services
 - organisations
 - other
- What is the toughest period you have experienced?
 - Highest electricity bill
 - Why was it high, in your view?
 - What did you do to manage it?
 - How did you feel during that time?
- Do you make changes in your behaviour to reduce electricity costs?
 - What do you find to be most effective?
 - Do you compromise on any needs important to you?
 - How does it feel, having to adapt?
- (with multi-person households) Have you divided the responsibility for energy-related matters?
 - Why does he/she have main responsibility?
 - Does your household electricity consumption differ from person to person?
 - Are you well-informed about electricity?
 - Do you discuss electricity matters?
 - Does the electricity bill impact on household relations?
- Have you invested in energy improvements?
- What do you feel has made electricity more expensive this winter than last year?

- For how long have you experienced challenges with electricity use?

Heating

- How well equipped with heating technology is your dwelling?
- What energy sources do you use?
- How do you heat the dwelling?
 - At night
 - While away
- Do you heat all the rooms?
- How do you adjust the temperature?
- How warm do you normally keep it?
 - What temperature(s) would you prefer?
 - How often do you maintain your preferred temperature?
- Do you have any other ways of heating your dwelling?
- What are the mornings like?
- What do you feel when you wake up?
- How do your heating practices change from season to season?
- Do you follow weather forecasts and electricity prices?
 - How does this affect you?
- Have you undertaken any special measures in particularly cold periods?
 - How did that feel?
- Have you had any problems with the technology used in heating?

Health

- To what degree does your electricity situation affect your health?
 - physically
 - mentally
- Do you talk about your problems?
 - electricity bills
 - heating
 - finances
 - How or in what ways are those you talk with able to relate to this?
 - Do they have similar experiences?
- Are there people who can help you with any of these problems?
 - friends
 - family
 - How does it feel to have them to help you out?
- How are your relations with the landlord?

- Do you discuss energy-related matters?
- Have you ever thought of moving because of problems related to electricity or your landlord?
- Do your neighbours have similar problems?
- How frequent do you believe these problems are?
- How frequently do you think people like you adapt to electricity prices?

Leisure time

- What do you do in your leisure time?
 - cook
 - watch TV
 - read
 - cinema
 - theatre
 - go out
- Are you active on social media?
- Are there things that the electricity bills hold you back from doing?
- How often do you socialise?
 - Do your friends come visit you?
 - Does your energy consumption change when they come to visit?
 - In terms of energy use, when you go visit them is it similar to when they visit you?
-