



EnergyMeasures

Tailored measures supporting energy vulnerable households

D1.4

Review of EU and national policy affecting energy vulnerabilities in the participating countries



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About EnergyMeasures

EnergyMEASURES is working to address energy poverty in seven European countries, namely: Belgium, Bulgaria, Ireland, Netherlands, North Macedonia, Poland and the United Kingdom. The project comprises two complementary and synergistic strands of work.

The first strand involves working with energy poor households to improve their energy efficiency through a combination of low-cost measures, and changes in energy-related behaviours and practices. Recruited householders will be provided with low-cost energy measures and empowered to change their energy-related behaviours and practices through an approach that takes account of existing housing conditions and is reflective of their lived experience.

The second strand comprises working with municipalities, energy authorities, housing associations and other relevant actors to assess how current multi-level institutional contexts affect efforts to alleviate energy vulnerability in the participating countries. This knowledge will be used to develop and support the implementation of policy and practice measures which will address structural issues that combine to trap households in energy poverty.

Through this work the project contributes to reducing participants' vulnerability to energy poverty, while at the same time cutting household energy consumption and associated GHG emissions.

For more information see <http://www.energymeasures.eu>

Description of this report and its purpose

This deliverable presents a review of relevant EU and national policies that affect energy vulnerability in the seven participating countries. We take an analytical perspective combining the concepts of social resilience and environmental justice. This enables us to attend to the ways in which policies and interventions show a recognition of the specific needs of energy poor households (relating to their capabilities and available resources), while also addressing how these policies and interventions (potentially) have distributive impacts.

The purpose of this report is to provide (together with a previous report on citizen views with regard to policy needs for energy poverty alleviation (Breukers *et al.*, 2021) a more detailed starting position for subsequent work that will further explore innovative governance practices together with relevant policy actors in the participating countries.

Glossary

| | |
|------|----------------------------------|
| DoA | Description of Action |
| EU | European Union |
| EP | Energy Poverty |
| EPOV | EU Energy Poverty Observatory |
| RES | Renewable Energy Sources |
| NECP | National Energy and Climate Plan |
| NGO | Non-Governmental Organisation |
| WP | Work Package |

1 Introduction

This report provides a review of relevant EU and national policies that affect energy vulnerability in the participating countries (Belgium, Bulgaria, Ireland, Netherlands, North Macedonia, Poland and the United Kingdom). As part of Task 1.4, an overview has been compiled of policies that have distributive impacts on energy vulnerable households in the participating countries. This has been done largely based on desk research, and knowledge and experiences presented by the consortium partners. In addition, the stakeholder interviews that have informed the previous report on citizen needs (Breukers *et al.*, 2021) have also provided insights on both formal and informal institutional supports that are available at different levels. The focus in this report will be on the formal institutional supports (policies). In addition, examples of promising support schemes/initiatives are provided— without aiming to be exhaustive in this respect.

1.1 Organisation of the report

This report is organised as follows. First, the remainder of this introductory section briefly sets out how the work reported on in this report relates to other activities and tasks in the EnergyMeasures project. Next, the methods section elaborates how we have organised and structured the empirical work and presents the conceptual lens for the analysis of empirical findings. Section 3 provides an overview of EU policy for addressing energy poverty. In Section 4, the analytical descriptions for each country are presented. Subsequently, Section 5 concludes with a discussion of these findings.

1.2 Connections to other activities in the EnergyMeasures project

The outcomes of the work described in this report, together with the previous EnergyMeasures outputs (Dunphy 2020; Dunphy *et al.*, 2020; Breukers *et al.*, 2021) are taken as a point of departure for a package of work, which will involve the co-development of innovative governance practices to alleviate energy poverty.

2 Methodology

2.1 Background

The combination of low incomes, high energy prices and low levels of residential energy efficiency have been widely acknowledged as causes of energy poverty (Boardman 1991). A previous report from the EnergyMeasures project pointed towards broadening this understanding with attention to the more structural and contextual conditions that affect energy poverty (Dunphy *et al.*, 2020). While not causing energy poverty, several characteristics of households, their members, and specific contexts can work to further worsen their situation by undermining possibilities to affect any change themselves. Conversely, enabling households to take control of the situation at least to some extent is a crucial important element in approaches aimed at alleviating energy poverty.

Researchers and practitioners have called for more attention to be paid to the various drivers of energy poverty, whereby policy practices and existing institutional contexts at multiple decision-making levels have been pointed out as key conditions affecting energy poverty (EPOV, 2020a; Bouzarovski *et al.*, 2021). It is against this background, that the review presented in this report is to be understood as well.

The aim is not to present policy evaluations and quantify impact. Instead, we look at how policy addresses the characteristics and contextual conditions (including physical and technical aspects) mentioned above, relating these to social resilience (capabilities) and environmental justice (Bartiaux *et al.*, 2021; Day *et al.*, 2016; Middlemiss and Gillard, 2015; Walker and Day, 2012; Willand *et al.*, 2021).

2.2 Recognition, distributive justice and social resilience

Social resilience refers to the ability of people to cope with changes and challenges and the resources they can draw upon in doing so, distinguishing between personal, social and environmental resources (see table 1) (Van der Haar *et al.*, 2018; Putnam, 2000). Social resilience is about the resources that people can deploy to improve their situation and deal with transitions (*e.g.*, the energy transition). In a previous project output, Breukers *et al.*, 2021, this division was used to clarify the problems with which citizens living in energy poverty are confronted in terms of (lacking) capabilities, specified for these three resource areas, leading to lower levels of social resilience. The social resilience perspective enabled the identification of a broad portfolio of policy and governance needs, based on identified citizen needs (Breukers *et al.*, 2020).

Table 1: Social Resilience Resources (Van Haar *et al.*, 2018)

- **Personal resources** and capabilities refer to the skills and competences, as well as the motivation to make use of these (considering educational levels, income, willingness to (accept) change; trust in others and institutional trust).
- **Social resources** refer to *e.g.*, participation in social networks, which can offer access to new opportunities that cannot be accessed individually. Participation in social networks is furthermore important for people to develop themselves – these networks can be small, local (*e.g.*, family, football club) or larger and more open (*e.g.*, religious community, neighbourhood, work environment).
- **Environmental resources** are strongly related to the physical structure and spatial stratification of social utility provisions, and the quality of the direct living environment. Proximity of services, of meeting places and social spaces impacts social resilience.

In this report, we combine a social resilience perspective with a pluralistic environmental justice framework that distinguishes between the three dimensions of recognition, procedural and distributive justice (Davoudi and Brooks, 2014; Schlosberg, 2004; 2013; Walker and Day, 2012).

The rationale behind this is that while the social resilience perspective is useful to map how policy and other interventions affect available resources and capabilities for households, the pluralistic environmental justice framework allows us to consider both the extent to which policy frameworks recognise energy poor and in relation to this the distributive impacts that these may have on their situation. While acknowledging the relevance of all the three environmental justice dimensions, in our policy review the main attention goes to the recognition and distributive dimensions - an inquiry into the quality of the various governance processes to address distributional justice goes beyond the scope and aim of this report.

This report seeks to examine how current policy frameworks and other supportive interventions impact, or can be expected to impact, both the direct situation of energy poverty as well as the capabilities of

households to improve their situation themselves (by themselves or together with others). Energy poverty is something that is not solved by techno-economic and physical interventions only (*e.g.*, Bartiaux *et al.*, 2021). Therefore, it is important to assess to what extent policy and interventions address the more social and socio-political structural dimensions as well. This results in the following set of overarching questions.

- To what extent do the various policies and interventions reflect a recognition of the specific needs of energy poor households – relating to personal resources, social resources, environmental resources?
- What are the (expected/likely) distributive impacts of the various policies and supportive interventions for energy poor households (considering personal, social and environmental resources)?

Each national policy review section concludes with an effort to address these two questions.

2.3 Research approach, data collection and analysis

For each partner country, a policy review was compiled, based on existing reviews, additional inquiries into literature, stakeholder interviews and project partners knowledge. As for existing reviews, a recent review published by the EU Energy Poverty Observatory (EPOV) that includes EU member states policies based on draft and final National Energy and Climate Plans (NECPs) was used, as well as some examples of non-governmental initiatives (EPOV 2020b). EPOV has performed extensive work in terms of policy reviews and analysis that are based on thorough theoretical, conceptual and empirical work (EPOV 2019; EPOV, 2020a; Bouzarovski *et al.*, 2021). We followed their policy typology (see Table 2) and where relevant complemented the review work.

Table 2: Types of policies and measures relevant to alleviate energy poverty (source: EPOV, 2021a)

| | |
|--|--|
| Financing improvements | Supporting improvements in the energy situation of households is the most preferred option to solve energy poverty structurally through directly facilitating the improvement of the following: Building insulation; Cooling system; Energy storage; Heating system; Household appliances; Renewable energy; Transport |
| Disconnection protection | protection against disconnection for households, often in colder months during wintertime. Most common is to disallow disconnection completely during wintertime for certain physically more vulnerable households, such as disabled and pensioners |
| Energy audits | visits to vulnerable households to provide direct advice on how to improve their specific situation. These measures tend to be quite successful in reaching households, because they are often carried out in cooperation with other social organisations, for example social workers or health professionals |
| Reducing burden of energy bills | Financial assistance to reduce energy bills can be given in two ways. These measures are effective in lowering the burden of energy bills of households in the short-term, but do not provide long-term solutions to the problem. <ul style="list-style-type: none"> - Energy bill supports - financial assistance / subsidies to pay energy cost - Social tariffs - targeted lower tariff energy for energy vulnerable |
| Information and awareness | measures that indirectly facilitate households to improve their situation by providing advice, information or education. |
| Social support | provides general income support for households to cover more general expenses such as housing or living costs, which can also include energy costs. |

For the national policy reviews, we have proceeded as follows. First, we collected basic overviews from the policy review inputs from the EU Energy Poverty Observatory member state reports (EPOV 2020b). Next, we compared and complemented these with information from each participating country's Household Engagement Plans (EnergyMeasures, 2021) and also performed additional desk-research. Third, based on stakeholder interviews with policy actors (*e.g.*, NGOs, intermediaries, local policy officers, *etc.*), additional information as well as local governance examples were added. These insights came from the same pool of interviews used for a previous report on citizen needs for policy support (Breukers *et al.* 2021) (conducted between December 2020 and May 2021, 33 in total) (see Appendix 1 for the overview). Fourth, the draft policy reviews were shared with the partners in each country, inviting additional examples, comments, improvements and asking them to answer the overarching research questions. After some iterations, these drafts were then finalised. For North Macedonia, no EPOV policy review was available, so the North Macedonian partner prepared a policy review in the same manner.

The aim of this report is to provide an overview of relevant policies and other support schemes with distributive impacts on energy vulnerable households in the participating countries. This overview is not exhaustive. Several countries are developing policies targeting energy poverty at the time of writing, and as for the local and regional support we have identified relevant examples rather than mapping all sub-national support initiatives.

3 The EU and policy on energy poverty

In 2019, 6.9% of EU citizens were unable to keep their home adequately warm (Eurostat, 2021a). The EU acknowledges the severe negative impact that energy poverty has on people's livelihood. In order to assist member states in addressing energy poverty the *EU Energy Poverty Observatory (EPOV)* was initiated. EPOV monitors the status of energy poverty in each of the member states, frequently publishes on the topic and provides member states with advice on how to address the issue¹.

One of the first times energy poverty was mentioned explicitly as an issue of EU policy was in the 3rd Energy Package, proposed in 2007 and adopted in 2009. It formulated requirements for protecting vulnerable energy consumers (EU, 2019a). The *Clean Energy Package for all Europeans* of 2019 aimed at further integrating energy poverty into existing policy fields, such as the quality of the building stock (EU, 2019b). The *Internal Market Directive* passed in 2019 obliges member states to define criteria for the assessment of energy poverty. Such criteria can be based on the level of income, expenditures on energy, dependency of electrical appliances for health and the energy efficiency of housing. Consumers who are considered vulnerable to energy poverty are supposed to be protected, *e.g.*, from being disconnected from their energy supply during critical times (usually the winter months). When the number of households affected by energy poverty is deemed "significant"² in a given country, the national government is obliged to formulate additional measures to "monitor, analyse, understand and reduce energy poverty" (EU, 2019c). This includes time-bound goals for reducing the number of households considered to live in energy poverty and measures to

¹ The second phase of this initiative due to be launched in 2021 will be known as the Energy Poverty Advisory Hub

² It is noted that the term "significant" is not clearly defined, creating ambiguity as to when measures for reducing the instances of energy poverty are due.

increase domestic energy savings and the energy efficiency of housing (EU, 2018). Member states must specify these measures in the National Energy and Climate Plan (NECP) and report on the results of their implementation.

The *European Green Deal* of 2019 and the *Covid-19 Recovery Strategies* relates energy poverty to the notion of a just transition in which “no one is left behind” (EU, 2019d). The pursuit of a climate neutral continent in 2050 and, simultaneously, an inclusive energy transition has caused some tension. A tax levied on the consumption of fossil fuels would increase the overall expenditure of less wealthy households, which would force them to spend on energy at a much higher rate relative to their income. The European Commission aims to treat both matters with an equal sense of urgency as presented among others by the *Just Transition Fund*. The fund is for re-educating employees in sectors and regions which heavily rely on carbon-intensive activities. In that way the fund contributes to the transition towards a cleaner energy system while at the same time generating economic opportunities for people who would otherwise be left without a job (EU, 2021).

Improving the quality of the building stock is seen as a pillar of the EU energy poverty policy framework, as highlighted in the *Green Deal*. An ambition of the *Renovation Wave* policy package is the large-scale renovation of the European building stock, contributing to the affordability of housing as well as its climate neutrality (EU, 2020). As part of the *Renovation Wave*, the European Commission has issued a set of *Recommendations on energy poverty* (European Commission, 2020), promoting the embeddedness of energy poverty in current policies, and recognising the importance of public participation and the distributional effects of policy instruments. To facilitate the exchange of best practices on the area of energy poverty, the EU initiated the *Citizen’s Energy Forum* (EU, 2019a).

4 National and subnational institutional support to alleviate energy poverty

National policy measures vary widely across Europe, but mostly involve combined social and energy policies – e.g., social tariffs, subsidies, energy efficiency instruments. The authors of the 2019 annual EPOV report pointed out at the time that specific energy poverty-focused measures and definitions were overall lacking at the national level across Europe (EPOV, 2019). At the time of writing, several governments have taken steps to develop such policies as part of their NECPs, yet it is too early to assess what these will bring.

4.1 Energy poverty policy review Belgium

4.1.1 Introduction

Energy poverty has been recognised by Belgian policymakers, with social tariffs for natural gas and electricity in place for vulnerable households since 2004 (EPOV, 2020b). While Belgium is quite active in terms of recognising and addressing energy poverty, there certainly is room for improvement. Moreover, the very general numbers on energy poverty hide the fact that the occurrence is quite high in some regions (e.g., Wallonia) and among certain groups (e.g., private tenants of whom 15% reported being unable to keep their home warm, and 8.8% had arrears on energy bills) (EPOV, 2020b).

Energy poverty is well-reported on in Belgium, with yearly the Energy Poverty Barometer being published by the King Boudewijn Foundation (KBS). The most recent barometer states that over 20% of Belgian households are affected by energy poverty, varying from 15% in Flanders, to 27.6% in Wallonia, and 25.6% in Brussels (KBS, 2020). The high percentage in Wallonia is related to the fact that houses are often larger and less energy efficient, in combination with overall lower income levels and higher natural gas prices in Wallonia compared to Flanders. In Brussels, the higher level of energy poverty can be related to the relatively large share of poor populations, combined with the higher cost of living in cities. Hidden energy poverty is particularly high in Brussels (10% against 3.3% in Flanders and 2.6% in Wallonia) (KBS, 2020).

According to the EU Energy Poverty Observatory, in 2018 5.2% of the Belgian population reported being unable to keep their homes adequately warm compared to the EU 7.3% average. Similarly, 4.5% of the population was unable to pay their utility bills on time due to financial difficulties, while the EU average is 8.6% (EPOV, 2020b).

4.1.2 Policies at national and subnational levels

The EU Energy Poverty Observatory reports that Belgium has a wide range of energy poverty policies in place. In addition to the overview of policies that the EPOV has mapped, Table 3 also includes some additional policies and measures that are relevant for the Belgium context.

Table 3 Selected policy measures in Belgium (source: EPOV 2020b with 11 additions)

| Selected measures | Type of measure | Organisation | Target groups | Start year | Result |
|---|------------------------------------|--|---|------------|---|
| Disconnection protection during winter (Brussels, Flanders and Wallonia) | Disconnection protection | Regional government | Indebted households | Unknown | Economically vulnerable households cannot be disconnected from the grid in the months October – March. |
| Electricity and gas fund | Social support | National government, Local government (OCMW ³) | Indebted households (eligibility is defined by municipality) | 2002 | The number of cases receiving financial support has decreased from 52,184 in 2008 to 28,895 in 2015. Besides bill support, additional measures in terms of energy efficiency and energy audits are provided. ^(a) |
| Social Heating Fund | Social support | National government | Vulnerable, low-income and indebted households | 2005 | In 2019, 76,539 households received an allowance from the Social Heating Fund. |
| Energy Scan campaigns (Energy Savers) | Energy audits, Building insulation | Regional government and NGO (e.g., Herwin) | Vulnerable households, Indebted households (tenants and homeowners - eligibility is | 2007 | 18,362 energy checks were performed in 2019 with the EnergieSnoeiers in Flanders. Due to Covid-19 almost no scans have been performed in 2020 and 2021. ^(a) |

³ The municipal Public Centers for Social Wellbeing (OCMWs) judge if support is allocated or not to a household and different OCMW's make different judgements (BE_SH2).

| Selected measures | Type of measure | Organisation | Target groups | Start year | Result |
|---|-------------------------------------|------------------------------------|--|------------|--|
| | | | defined by municipality) | | |
| Energy and renovation grants (Brussels, Flanders and Wallonia) | Building insulation, Heating system | Regional government | No specific target group | 2004 | 146,000 energy grants were disbursed between 2004 and 2012 adding up to €90 million. In 2012, most grants were allocated for improving windows and household appliances. |
| Grants for social insulation projects for rental buildings | Building insulation | Regional government, Grid operator | Vulnerable households, Private tenants, social housing | 2016 | Unknown |
| Social tariff for natural gas and electricity | Social tariff | National government | Vulnerable households | 2004 | In 2019, 7.8% of electricity customers and 7.6% of gas customers were entitled to the social tariff (356,000 households in total). There are strict eligibility conditions which leads to exclusion of some poor households. |
| Dampoort renovates! | Building insulation, Heating system | Local government | Low household - income | 2014 | The buildings that participated improved from an EPC-score of 519 kWh/m ² to 244 kWh/m ² . |
| Emergency Purchase Fund | Financial assistance | Federal government (Flanders) | Income-poor home owners | 2020 | Provides interest-free loans to perform energy-efficiency renovations. 300 homes are currently being/have been renovated. ^(b) |
| Papillon | Appliances | NGO | Low-income households | 2018 | Leasing concept for low-income households. Bosch delivers A++(+) appliances and takes care of service and warranty. Currently 73 households are reached with 129 appliances. From the summer of 2021 onwards an extra 550 appliances are foreseen to be leased. ^(c) |
| Rental and Insulation Premium | Financial assistance | Federal government (Flanders) | Low-income households | Unknown | In 2019, 312 premiums were granted. ^(d) |
| Corona charter | Disconnection protection, | National government | Low-income households, | 2020 | Energy suppliers voluntarily agree to defer energy bill |

| Selected measures | Type of measure | Organisation | Target groups | Start year | Result |
|-------------------|-------------------|--------------|-----------------------|------------|---|
| | payment deferment | | vulnerable households | | payments and not perform disconnections during the time of heavy restrictions related to the Covid-19 outbreak. ***** |

^(a)BE_SH5, ^(b) Government of Flanders (2021a), Belga (2020), ^(c) BE_SH2, ^(d) Government of Flanders (2021b), ^(e) FEBEG (2021)

In Belgium, there is a strong emphasis in policies towards lowering the cost of energy – with efforts to limit consumption and provide support to improve the ability of households to pay their energy bills. This takes the form of a social tariff for natural gas and electricity, protection against disconnection and initiatives to roll-out pre-payment meters or power limiters that help prevent or decrease debt accumulation among energy poor households. Households which cannot access energy via a commercial supplier due to debts are automatically transferred to such pre-paid debiting system. Controversy about this system include the fact that the tariff is actually more expensive than an average commercial tariff despite being intended to prevent and/or decrease indebtedness.

Energy and renovation grants to support energy efficiency improvements are available in all regions. They differ across regions and there is no clear overview on how effective they are in supporting energy poor households. Moreover, stakeholder interviews point out that there is currently hardly any incentive for private landlords to improve the energy efficiency of homes that they let to energy poor households. An exception is the initiative *Goed Plan* by Samenlevingsopbouw (BE_SH2) which aims at improving the housing quality of rental properties. Landlords who rent out a home to an energy poor household receive advice on effective renovations in turn for a lower rent. The programme is in place in several Belgian cities (Samenlevingsopbouw, 2021). As for energy poor home owners, renovation programmes in Belgium do not specifically target energy poor households (EPOV, 2019; Sokol, 2017).

4.1.3 Other public and private support

Both the EPOV report as well as interviews with stakeholders point towards a variety of available regional and local social services to energy poor households (see Table 3). These include all types of support ranging from negotiating payment plans, assistance in selecting an energy supplier (and offer), energy audits and energy coaching support (BE_SH1, BE_SH3, BE_SH4, BE_SH5).

The Belgian housing market suffers from a lack of appropriate rental homes leading some people to buy a house despite being on a limited budget. The *Emergency Purchase Fund* (“Noodkoopfonds”) provides income-poor home owners with an interest-free loan to perform energy-efficiency renovations. Advice about construction is also provided to beneficiaries (Government of Flanders, 2021a).

4.1.4 How do policy measures address the structural conditions underlying energy poverty?

Available housing for energy poor households

In Belgium, the availability of social housing is very limited – with waiting times of 4 years on average. The consequence is that low-income households have to rent on the private rental market, which is characterised by substandard housing in terms of insulation, dampness, available space, comfort and renewable energy production (Heylen & Vanderstraeten, 2019). Hence, where financial assistance is provided to enable

households to pay their energy bill on the one hand, the tight housing market keeps households in a situation where the monthly costs of living are simply too high on the other hand. Living costs are considered high not only because of energy costs, but also or even more so due to the high rents and the bad quality of many of private rental homes. (Co-)funding of energy efficiency measures is often tied to the condition of an upfront investment from the owner, raising the threshold to access the support in the first place.

Different cities across Belgium are experimenting with obligatory minimum housing conditions for privately owned rental dwellings. While this incentivises homeowners to improve the housing quality, it also invokes the risk of homeowners selling the house, aggravating the scarcity on the rental market.

Groups that fall out/are not targeted

Landlords in the private rental market cannot apply for several premiums made available by the government and DSOs for owners who renovate their house or make it more energy efficient (Wonen-Vlaanderen, 2021). The underlying factor is the legislative course of the Belgian government which promotes ownership rather than tenancy.

The groups of people who are eligible for the federal social tariff are elderly people without a pension, disabled people and those renting on the social rental market. People with a limited income, those who receive unemployment benefit or an illness-allowance are not eligible for the social tariff despite that many people belonging to this group can be considered vulnerable.

Uptake of measures by households

Stakeholder interviews revealed that households might not always be sufficiently aware of the support that is available to them. The *Rental and Insulation Premium* is meant to increase energy efficiency of tenants' housing but the target group is often unaware of the arrangement (BE_SH5). NGOs promote the premium and support households to apply for it but due to the low reimbursement, enthusiasm has waned (BE_SH5).

4.1.5 Conclusions Belgium

To what extent do the various policies and interventions reflect a recognition of the specific needs of energy poor households – relating to personal resources, social resources, environmental resources?

Various national support measures available are income based, supporting low-income and vulnerable households in the payment of their bills. Support has been offered as a response to the Covid-19 outbreak. As such, there is a recognition of the specific need for additional supports for vulnerable households.

As for specific needs that relate to personal resources such as skills, knowledge and competences, there are very few national policies in place. It is mainly sub-national programmes and non-governmental and local actors that target capacity building in the form of education, coaching or advice. It is mainly local and non-governmental initiatives that help strengthen personal capabilities – needed to understand and apply for allowances and other supports – where educational background, language and digital skills are essential. Without support, the administrative barriers and thresholds are too high for many vulnerable groups.

In terms of social resources, there is no clear view on how these are being recognised and strengthened, but various non-governmental actors and community workers provide energy poor households with social support through active engagements. For example, the *Goed Plan* initiative builds on the existing relationship between landlord and tenant.

As for environmental resources, the current policy focus is on the social housing sector and to a limited extent on owner-occupied homes. Existing renovation programmes do not specifically target energy poor home owners which makes it unlikely that this group can make good use of these programmes (as these households cannot provide the necessary upfront investments). An exception is the *Emergency Purchase Fund* targeting income-poor home owners. Too little attention is paid to the private rental sector as a relevant player for addressing the low stock of affordable and qualitative housing. This aggravates the problem of poor housing quality for tenants of private-owned dwellings. National policy should provide support to improve the quality and affordability in the private rental sector (rather than just focusing on penalising poor-quality housing).

Initiatives such as the one by Papillon acknowledge that low-income households have appliances with a poor energy performance and the fact that households are in favour of low threshold support measures, *i.e.*, not having to jump through several administrative hoops to receive support.

What are the (expected/likely) distributive impacts of the various policies and supportive interventions for energy poor households (considering personal, social and environmental resources)?

Overall, in Belgium, the focus is on enabling energy vulnerable households to pay the energy bill, which has a distributive impact but does not address structural conditions that cause the energy bill being too high in the first place. In addition, eligibility for various allowances is in some cases rather strict, effectively excluding vulnerable households from this support.

The amount of affordable housing remains to be insufficient, thereby perpetuating the situation that energy poor households live in homes that they cannot afford (whether they are tenants or owners). The government addresses the issue through renovating existing homes in the social housing sector and developing new ones. The private rental sector falls outside the scope of most policies, as there is no national policy to incentivise landlords to improve the quality of the homes. Yet there are initiatives in this direction in several cities.

4.2 Energy poverty policy review Bulgaria

4.2.1 Introduction

Bulgarian legislation does not have a definition of energy poverty (EPOV, 2019). Several policy documents concerning the future strategies on housing, energy and climate do not explicitly mention energy poverty, illustrating that the term is not deeply entrenched in the public discourse. Until 2021, Bulgaria had relatively strong social policies in place supporting vulnerable household, but no national policies that specifically and explicitly target energy poor households and its structural causes (EPOV, 2020a; Kyprianou *et al.*, 2019). The lack of recognition of energy poverty by national policy-making stands in contrast with the ample attention the scientific community of Bulgaria has given to the matter (Kyprianou *et al.*, 2019). However, this is beginning to change as recent policy is starting to address energy poverty as part of the NECP.

Bulgaria belongs to the poorest countries of the EU in terms of income (Sinea and Vornicu-Chira, 2020). The percentage of households unable to keep their homes warm is the highest of all EU countries, 33.7% compared to the EU average of 7.3% (EPOV, 2020b). Nonetheless it has significantly improved since 2005 when 70% of households were unable to keep their home adequately warm (EPVO, 2020b). Various structural factors that cause energy poverty include the poor energy efficiency of buildings, low incomes, and

high energy prices. The poor energy efficiency of buildings is a major problem with over 90% being in energy classes D, E, F and lower (EnergyMeasures, 2021). Still, the Bulgarian people spend an unusually low share of their income on energy, which likely is an indication that they restrict their energy use to be able to pay for other necessary needs (EPOV, 2020b). In rural areas, problems with energy poverty tend to be somewhat more severe – related to the types of dwellings (mostly detached houses with higher relative heating costs), an ageing population, and lower disposable incomes (EPOV, 2020b). In rural dwellings the use of cheap, polluting solid fuels is a wide-spread practice with 62.8% of homes using firewood and 32.5% using coal for heating (Center for the Study of Democracy, 2020). Recent analyses show that more than 50% of the Bulgarian population are at risk of energy poverty (EnEffect, 2019; EnergyMeasures, 2021). The Bulgarian energy market is currently undergoing a process of liberalisation (EPOV, 2019). The national government is striving to protect consumers from the negative consequences of this shift. Currently, the electricity market is highly regulated and characterised by a high degree of centralisation (Kyprianou *et al.*, 2019).

4.2.2 Policies at national and subnational levels

In Bulgaria, there has been a strong emphasis on policies supporting households in paying their energy bills, by means of the Social Tariff for Electricity and the Heating Aid in winter (see Table 4). General income support is provided to households with incomes below a certain threshold through the *One-time Support Measure* and general monthly allowances. Many of these policies have been in place for over 20 years (EPOV, 2020b). The *National Strategy to Reduce Poverty and Promote Social Inclusion 2030* is an overarching policy strategy to raise the living standard of vulnerable social groups in Bulgaria (Georgiev *et al.*, 2021).

Previously, support in performing energy efficiency renovations has been mostly accessible via EU programmes and EU structural funds. In recent times the focus has shifted towards increasing the energy efficiency of housing as shown by various programmes that have been initiated since 2014: The *LIFE+* project and the *Environment* programme aim at replacing outdated and inefficient heating equipment, while the *Regions in Growth* programme focusses on improving the quality of housing through better insulation. The €1 billion-*National Programme for Energy Efficiency in Multifamily Residential Buildings* offers complex building envelope measures and modernisation of lighting systems in common spaces at 100% grant rate. The *Urban Development Fund* supports projects for whole building energy retrofitting offering soft loans, but does not yet have any completed projects in the residential sector in its portfolio. The *Microfinance and Community support programme* is targeting the improvement of the housing conditions of deprived minority groups and vulnerable households, providing soft loans for various maintenance measures based on successful completion of dedicated training courses.

The Bulgarian NCEP aims to define energy poverty as well as to develop a methodology for the identification of energy poor consumers. Measures are planned to protect consumers against the impacts of the ongoing liberalisation of the electricity market. Improving energy efficiency of the building stock is seen as a measure to lower the risk of energy poverty (Government of Bulgaria, 2021a).

In February 2021, the Bulgarian government has finally adopted the long-term strategy for renovating the national housing stock for the period until 2050, with roadmap and milestones to 2030 and 2040 (Government of Bulgaria 2021b). Building renovation is recognised as the main structural instrument to mitigate energy poverty. As it is claimed that vulnerable households are equally distributed in the different regions and types of buildings, no approach specifically targeting energy poor is considered necessary. Local

authorities are considered in the best position to design targeted local policies where needed. In the design of the future financial instruments, no mention is made of providing access to energy poor households, which reflects a continuation of the current practice of providing 100% grant financing for everyone within the *National Programme for Energy Efficiency in Multifamily Residential Buildings*.

In the latest available draft of the *National Recovery and Resilience Plan (published on 20.07.2021)*, there is a specific reform named “*Development of a definition of “energy poverty” for households for the purpose of financing projects for energy efficiency*”. It aims at developing a national definition of energy poverty. This would serve as key parameter for providing protection of the end users during the final phase of the liberalisation of the electricity market. Additionally, new programmes for renovation of multifamily buildings are included in the plan, but no concrete support programmes are specifically targeting energy poor households, given the fact that the 100% grant financing continues to be in the mainstream (Georgiev *et al.*, 2021). At this subsidy rate and with the current resource allocation, no structural change would be possible as less than 2% of the eligible buildings will have access to financing.

Table 4: Selected policy measures in Bulgaria (source: EPOV, 2020b, with additions)

| Selected measures | Type of measure | Organisation | Target groups | Start year | Result |
|--|--|--|--|----------------------------------|--|
| REECL Programme | Building insulation, Heating system | National government, Business/Industry | Apartment buildings | 2006 | 20% funding for domestic energy efficiency improvements. To date, the REECL Programme has committed to 2,635 energy efficiency loans totalling BGN 18 million and incentive grants amounting to BGN 3 million. The programme is not active anymore. |
| Social tariff for electricity | Energy bill support | National government | Vulnerable households | Under consideration ⁴ | It is estimated that the measure will reach 1.1 million people. |
| Heating aid in winter (monthly allowance) | Energy bill support | National government | Low-income households | 1999 | Nearly 7% of the population is covered, which is about 500,000 people, or around 250,000 households per year. The subsidy for the next heating season is at the amount of BGN 523.55 (€267.69) Aid is granted on a monthly basis to persons or families who meet multiple pre-defined conditions. |
| Reduced Energy use And Change Habits (REACH) | Information and awareness, Energy audits | European Union | Vulnerable households | 2014 | In various countries, over 1,600 home visits were conducted whilst giving advice in energy efficiency. |
| One time support | Social support | National government | Vulnerable households, Low-income households | 1999 | One-time financial support may be granted once a year in exceptional circumstances when there are extra costs, which could include higher heating costs in winter or broken heating equipment. |
| National Program for Energy Efficiency in Multifamily Residential Buildings | Building insulation, windows replacement | National government | All apartment owners, including vulnerable | 2015-2020 | 100% grant for energy renovation of multifamily residential buildings to energy label C within a total investment of € 1 billion, covering |

⁴ To be implemented after full liberalization of electricity market

| Selected measures | Type of measure | Organisation | Target groups | Start year | Result |
|---|---|---|--|------------|--|
| | , lighting in common areas, heating systems (limited) | | and low-income households | | about 2000 buildings (out of more than 65 000 multifamily buildings in the country, 90% of which falling in energy classes D and lower). |
| Urban Development Fund | Any energy efficiency or RES measure | National government via “Regions in Growth” operational programme | Owners of single-family buildings | 2021 | Low-interest credit for renovation of single-family buildings towards label C. No grant component. Operated by commercial banks as consumer loans, thus limiting access of vulnerable/energy poor households. ^(a) |
| Operational Programme “Regions in Growth” | Building insulation, windows replacement | National government | All apartment owners, including vulnerable and low-income households | 2014-2020 | Provides 100% grant for the energy renovation of multi-family residential buildings towards label C in the so called “peripheral regions”, under the same conditions as the National Programme for Energy Efficiency in the Multifamily residential buildings. |
| Operational Programme “Environment” and LIFE+ Project “Bulgarian Municipalities Working Together to Improve Air Quality” | Heating system | National government | Owners of single-family buildings in selected cities with air quality problems | 2018-2024 | 100% grant for the replacement of old inefficient coal and wood burning stoves and transition to more efficient forms of heating with pellets, gas or use of the central heating network. |
| Microfinance and Community support | Building insulation, heating system | NGO (Habitat for Humanity Bulgaria) | Low-income families | 2008-2019 | Credit line operated jointly by Microfund and Habitat for Humanity Bulgaria to provide access to financial solutions for low-income families for improving the energy efficiency of their homes and reduce their energy costs. Habitat for Humanity Bulgaria also operates a Community Support Programme aiming to provide interest-free loans for low-income families to improve their homes. |
| Integrated Energy and Climate Plan of the Republic of Bulgaria | Building insulation, heating system | National government | All relevant entities | 2020 | Energy poverty is only discussed in the context of providing protection for the vulnerable households after the liberalisation of the electricity market and the continuing of the heating aid. ^(b) |
| Long-term National Strategy to Support the Renovation of the National Building Stock of Residential and Non-residential Buildings until 2050 | Building insulation | National government | Owners and tenants of residential and public buildings | 2021 | No specific activities are targeted to energy poor households as it is claimed that there is no difference between the energy poverty status in the various segments of the building stock. There are no estimates on the impact of the strategy on energy poverty parameters. ^(c) |

| Selected measures | Type of measure | Organisation | Target groups | Start year | Result |
|--|---------------------------------------|---------------------|--------------------------|----------------|---|
| SMARTER Finance for Families | New builds, whole building renovation | European Union | Home owners, | 2019-2021 | H2020 projects promoting “Green mortgage” schemes, including for building renovation |
| Recovery and Resilience Plan of Republic of Bulgaria | Building insulation | National government | No specific target group | In development | Grants for of improving national housing stock’s energy efficiency. ^(d) |
| National Strategy to Reduce Poverty and Promote Social Inclusion 2030 | Social support | National government | Low-income households | 2020 | Realising adequate income support, provision of social services and entrance to the labour market. ^(e) |

^(a) EnergyMeasures (2021), ^(b) Government of Bulgaria (2021b), Georgiev *et al.* (2021), ^(c) Government of Bulgaria (2021b), Georgiev *et al.* (2021), ^(d) SMARTER (2019), ^(e) Georgiev *et al.* (2021)

4.2.3 Other public and private support

As one of the few programmes run in Bulgaria, the *Microfinance and Community Support* programme – initiated by the NGO Habitat for Humanity Bulgaria – specifically targets low-income and vulnerable households. It provides households with interest-free loans to improve the energy efficiency of their home thereby lowering energy costs. Another programme of Habitat for Humanity Bulgaria specifically targets children and adolescents at risk of experiencing energy poverty, also by means of providing vulnerable households with interest-free loans (Georgiev *et al.*, 2021).

Campaigns for information dissemination and awareness-raising campaigns fall under the mandate of the local authorities (EnEffect, 2019), are initiated as part of research projects (including H2020) (Georgiev *et al.*, 2021) and are realised by non-governmental organisations, including EcoEnergy (EnergyMeasures, 2021).

4.2.4 How do policy measures address the structural conditions underlying energy poverty?

Conflicting policies

Social policies providing energy end-use subsidies such as the *Heating Aid* and the *Energy Allowance* are important sources of income for many Bulgarian households (EnEffect, 2019). These subsidies amounted to some €60 million in 2020-2021. Households largely use the funds to purchase bad-quality wood and coal, used to heat single-family but also multifamily buildings originally designed for district heating systems (EnergyMeasures, 2021). The supportive policies cause severe air pollution and in addition tend to perpetuate heating methods that also lead to in-house health problems (EnEffect, 2019). At the same time, various municipal programs invest heavily in improving air quality (around €50 million in the period 2014-2020). The two policy domains seem to contradict each other, in that they provide financial aid to households in need on the one hand while at the same time stimulate health-hazardous air pollution affecting the poor in the most severe way (BG_SH2, BG_SH3). Deep thermal retrofitting measures are generally seen as a solution to address energy poverty as well as the use of harmful solid fuels (EnEffect, 2019).

A number of programmes aim at the substitution of solid fuels as a source of heating with more modern and efficient systems, including gas boilers. A heating system which operates on gas however is more costly to use than burning wood or coal. Subsidies for the modernising of heating systems therefore stand in conflict with the need of energy poor households to save costs by accessing the cheapest form of fuel available (EnEffect, 2019).

Groups that fall out/are not targeted

There are social support programmes designed specifically for the most vulnerable parts of the population, such as *Heating Aid* and energy allowances. Households which do not fulfil the criteria for belonging to the most vulnerable but nonetheless have difficulties heating their homes properly and/or pay their energy bills on time, are deprived of access to these support schemes. People who dwell in illegal housing fall into this category (BG_SH2).

Another group which is at risk of being excluded from the benefits the support measures offer, are households with a lack of education. Advice about energy efficient behaviour, the decision which heating system should be installed or the choice to switch energy suppliers – all require a basic understanding of energy provision and its units (BG_SH1, BG_SH2). Many young people are also stated to lack awareness of the importance of energy efficiency and knowledge about domestic energy management (BG_SH2). As such, basic education is seen as a prerequisite for the successful implementation of support measures for vulnerable households (BG_SH1, BG_SH2, BG_SH3).

Weak institutions

Interviewed stakeholders comment in various ways about the functioning and the policy-making approach of the national public authorities.

- The national government discourages collective action in the energy sector (EnEffect, 2019). Via the media it publicly disseminates the narrative that it will ‘take care of everything’ while in reality ‘the situation does not improve’ (BG_SH1, BG_SH3). The political framework and the media are said to “instil passivity in the citizens” (BG_SH3). Citizens consequently “have a low level of ambition to improve conditions” and are “disillusioned” (BG_SH1).
- The current institutional framework is seen as actively discouraging entrepreneurship in the energy sector (EnEffect, 2019). Financing is better accessible for the public sector than for private sector and citizens (BG_SH3). Energy companies that have an ambition to address energy poverty, often through launching small scale projects, are disincentivised by high administrative hurdles (BG_SH3).
- Programs generally suffer from bad planning and management (BG_SH1, BG_SH3) and lack an integral design (BG_SH2). Monitoring and control of policy implementation are insufficient (BG_SH1) and programmes do not take the real needs of people into consideration (BG_SH1).
- The national government passes policies mainly to give the impression that effort is undertaken and to comply with EU guidelines (BG_SH1, BG_SH2).

The following statements are illustrative of the view that many citizens have a “high degree of distrust in public institutions’ efficiency and the services they offer” (BG_SH1).

Local authorities seem to be somewhat exempted from the distrust towards public authorities. In 2015, the management of renovation policies in Bulgaria was transferred to the municipalities which were much more successful in engaging with homeowners and their associations (BPIE, 2016). Due to the higher level of trust the municipalities enjoy, they are seen as the most suitable actors to reach out to households and develop and implement measures tailored to the needs of households by relevant stakeholders (EnEffect, 2019,

BG_SH2, BG_SH3). The involvement of the municipalities has reportedly led to better relations between homeowners' associations and local authorities. As for the multi-family apartment buildings, the home owner associations are managed on a voluntary basis, where the lack of skills and knowledge is a barrier to reaching the best energy efficiency solutions. A larger role for professional facility managers would be helpful.

4.2.5 Conclusions Bulgaria

To what extent do the various policies and interventions reflect a recognition of the specific needs of energy poor households – relating to personal resources, social resources, environmental resources?

When it comes to a recognition of specific needs relating to personal resources (*i.e.*, skills, knowledge, competences), there is no recognition of the importance that differences in personal resources can make on the decisions of potential participants to engage in the renovation support programmes, as they do not regard energy poor households as a priority target group. Awareness raising and behaviour change initiatives are result of small-scale projects of private entities. There is a need for campaigns for capacity building directed at energy poor households, as basic knowledge and an understanding of energy efficient behaviour and appliances would empower households to save costs and enable them to make better use of existing support measures.

When considering how social resources have been recognised, several remarks can be made. While the role of the municipality has been beneficial in the management of the renovation programmes at the local level, municipalities do not actively involve relevant stakeholders such as social and health services, NGOs, local initiatives. Other social services (social services, healthcare, education) and local advocacy groups could be approached but this is not happening at the moment.

Relevant social resources include the homeowner associations and their internal dynamics seem to have improved as a result of participating in the renovation programmes. The relations between the homeowners and the (most active) municipalities have been improved, together with the level of awareness for the services provided by the local authorities. However, professional facility managers could provide the needed knowledge and skills (currently home owner associations are managed on a voluntary basis mainly).

As for environmental resources (the energy efficiency of homes, heating systems and appliances), the renovation programmes, to the extent they are accessible (*e.g.*, only about 4% of the eligible buildings have access to the national programme for energy efficiency), are focused on the energy efficiency in the buildings. The clean air programmes focus on the efficiency of appliances, but often are not solutions for energy poor households as the heating systems promoted use more expensive fuels that they cannot afford. A transformation of the renovation programmes is needed to arrive at financing mechanisms that offer accessible support for households at different income levels.

What are the (expected/likely) distributive impacts of the various policies and supportive interventions for energy poor households (considering personal, social and environmental resources)?

The described renovation programmes have an undisputed positive impact on energy efficiency, comfort and well-being, as well on the energy expenses of the households – yet they do not target energy poor households specifically. Moreover, it cannot be properly quantified due to the lack of a monitoring system, and the scope

is insufficient to make a change at a societal level. The social support schemes such as *Heating Aid* do not target any energy efficiency improvements. These energy end-use subsidies have both positive and negative distributive impacts for low-income households. While providing support by saving on fuel costs, they also encourage the use of bad-quality wood and coal and as such have negative distributive health impacts on these same households.

In Bulgaria, the degree of integration of energy poverty into the Bulgarian policy framework is very low. A coherent policy framework which provides housing renovation programmes at a decentralised level tailored to the needs of vulnerable households and using clear administrative rules and procedures is absent. This leads to conflicting policies, ineffective implementation procedures and distrust on the part of the general population. The current energy allowance or end-use subsidies help households in need pay the bills in the short term, but structural causes remain largely unaddressed. Most significantly, there are no energy efficiency programmes specifically geared towards vulnerable households. The recent delegation of renovation programmes to local authorities is a positive development in this respect because they have a better understanding of the local context. Additionally, national policy strategies are increasingly embracing energy poverty, moving them closer towards compliance with EU legislation.

4.3 Energy poverty policy review Ireland

4.3.1 Introduction

The issue of energy poverty in Ireland has been recognised for some time, *e.g.*, social supports for energy costs were made available as early as 1942 (DCENR, 2016). Until recently, Ireland was one of only a few EU countries considered to have energy poverty as part of its political agenda. Ireland has an *Energy Poverty Advisory Group* which is independently chaired and advises the government's Department of the Environment, Climate and Communications (DCENR) about the matter.

According to the Irish Government's Energy Poverty Strategy, and depending on the metric used, the rate of households in Ireland experiencing energy poverty is between 8.8% (based on self-reported inability to heat one's home) and 28%⁵, when derived from modelled expenditure and building energy rating data (DCENR, 2016). According to the EU Energy Poverty Observatory, in 2018 4.4% of the Irish population reported that they were unable to keep their homes adequately warm compared to the EU 7.3% average. While the proportion of the population unable to pay their utility bills on time due to financial difficulties, was the same as the EU average at 8.6% (EPOV, 2020^b).

Ireland has a seasonal mortality rate that is amongst the highest in Northern Europe despite its relatively mild winters – contributing factors attributed to this include poor energy efficiency and relatively high energy costs (Thomson *et al.*, 2017).

4.3.2 Policies at national and subnational levels

The traditional response to energy poverty in Ireland has been social transfers, with Kerr *et al.* (2019) for instance observing that fuel allowances comprised about a quarter of all income supplement expenditure' (*ibid.*, p. 196). These transfers include the *Fuel Allowance* and the *Household Benefits Package* which provides

⁵ Using the 10% threshold, more than one-fourth of Irish households are in fuel poverty (DCENR, 2015)

additional electricity and gas allowances. These allowances are intended to help households with increased heating costs over the colder winter months.

In 2016, the Government's Energy Poverty Strategy saw it change its focus somewhat and highlight the central role it was also placing on energy efficiency (DCENR, 2016). Since 2000, over 135,000 lower income households have received free energy upgrades to their homes through schemes operated by the Sustainable Energy Authority of Ireland (SEAI). Additionally, over 70,000 retrofits have been carried out in Local Authority homes. The measures provided have moved from shallower measures to deeper whole-house upgrades. In 2020, Government investments of over €100 million were allocated to these schemes. This commitment is also reflected in increased funding for schemes such as:

- *Better Energy Warmer Homes Scheme* – free-of-charge energy efficiency measures for households who meet certain eligibility criteria;
- *Better Energy Communities Scheme* – grant support for community-based energy projects, which must include energy poor households;
- *Warmth and Wellbeing* – pilot scheme⁶ to improve the living conditions of vulnerable people living with chronic respiratory conditions.

Table 5 presents policies that are relevant for the context of Ireland, based on EPOV (2020b) and policy documentation of the Irish government (Government of Ireland, 2020).

Table 5: Selected policy measures in Ireland (source: EPOV, 2020b with two additions)

| Selected measures | Type of measure | Organisation | Target groups | Start year | Result |
|--|--|--|---|---------------|--|
| Better Energy Warmer Homes (BEWH) | Building insulation, energy audits, household appliances | National government | Low-income households | 2000 | 135,000 homeowners have had energy efficiency measures carried out to their homes under this scheme. |
| Better Energy Communities Scheme (BEC) | Efficiency improvements to homes | National government | Low-income households | 2012 | 260 communities have received grant support with 12,000 homes |
| Fuel Allowance & Household Benefits Package | Energy bill support | National government | Low-income households | 1988 | Approximately 410,000 recipients per year. |
| Social Housing Retrofit Programme | Building insulation, Heating system | National government, regional government | Social housing | 2013 | 70,000 social housing properties upgraded |
| Code of Practice for Energy Suppliers | Disconnection protection | National government | Vulnerable customers | - | Protections for customers in difficulty with their electricity or gas bills |
| Warmth and Wellbeing | Deep energy efficiency improvements to homes | National government | Low-income households, particularly people living with chronic respiratory conditions | Pilot in 2016 | Ongoing pilot |

⁶ Joint initiative between Department of Communication, Climate Action and Environment and Department of Health

The 2016 Energy Poverty Strategy maintains the objective set out in the first Government strategy on affordable energy, published in 2011, while also reflecting new understandings of the underlying reasons for energy poverty in Ireland, drawn from a public consultation exercise conducted in 2015. The strategy introduced the creation of a €20 million pilot scheme that targeted deep energy efficiency interventions to people in energy poverty suffering from acute health conditions and living in poorly insulated homes. The strategy also established a minimum energy efficiency standard for all rented properties (Government of Ireland, 2020). This need was confirmed by our interviews where stakeholders explained that, particularly for elderly people, there was a fear to turn on the heating so as to avoid high, unaffordable energy bills resulting in health problems related to hypothermia and dampness (IE_SH5).

However, less attention has been brought to raising awareness of energy saving and dissemination of other similarly useful information to households. Furthermore, Covid-19 has delayed housing upgrades and refurbishments, while energy bills have increased due to people working and studying from home (IE_SH3, IE_SH4). Consequently, the pandemic emphasised the societal need for avoiding the arbitrary disconnection of household energy supplies as well as for providing additional temporary support measures to energy poor households.

4.3.3 Other public and private support

Other public supports include the *Energy Efficiency Obligation Scheme*, introduced in 2014 as part of the implementation of the 2012 EU Energy Efficiency Directive. This scheme requires energy suppliers to reach energy savings of 0.75% of annual sales to final consumers. Targets are broken down between commercial, domestic and energy poverty sectors. As a result, energy suppliers have a legal responsibility to address energy poverty among their customers. This scheme has led suppliers to provide energy efficiency measures to vulnerable consumers (Government of Ireland, 2020).

Multiple stakeholders in the private and social sector are also active in the energy poverty field in Ireland. Namely NGOs such as Energy Action, the Society of Saint Vincent de Paul – Ireland and NCE Energy Hub are working to alleviate energy poverty. These institutions complement government initiatives by offering other support measures such as advice about the best energy provider (IE_SH7), support during application procedures (IE_SH2), promoting employment and improving housing standards. NGOs are also successful in reaching vulnerable households that are missed by the eligibility criteria of government programmes.

In addition, since 2014 energy suppliers have committed to never disconnecting a customer who is communicating with the supplier and working to clear arrears on their account through the Electricity Association of Ireland *Energy Engage Code*.

4.3.4 How do policy measures address the structural conditions underlying energy poverty?

Energy efficiency of dwellings

Energy poverty in Ireland is strongly linked to deprivation, though not exclusively so. Therefore, income supports still play a very important role in limiting the effects of energy poverty in the country. Nevertheless, as highlighted by Ireland's Economic and Social Research Institute (ESRI) and others, the problem of energy poverty may be more permanently addressed by tackling its root causes. Increased spending on upgrading

dwelling stock can offer a significant potential for reducing both the overall severity of energy poverty and the number of households in energy poverty (EPOV, 2021b). The current fuel allowance payment system does not have a relation to the objective of increasing the overall energy efficiency of dwellings. New schemes are replacing the current suite of fuel allowance schemes with dwelling upgrades to increase welfare gains. Stakeholder interviews confirmed this need with participants highlighting that low-income homeowners and tenants have less ability to insulate and invest in energy efficiency improvements, with some calling for housing to be retrofitted to limit the impact of fuel price increases and ensure a sustainable alleviation of energy poverty (IE_SH5).

Access to existing support programmes

The 2016 *Energy Poverty Strategy* sets out the case for energy efficiency and details a new 3-year €20 million pilot scheme. Still, stakeholder interviewees (IE_SH1, IE_SH2, IE_SH4, IE_SH7, IE_SH8) pointed out that many people, especially in rural Ireland, are not aware of existing support programmes and/or do not know exactly how to apply for these. People struggle with the forms and paperwork involved to access these grants. Furthermore, different eligibility criteria for different programmes represent barriers to reaching all cohorts of society vulnerable to energy poverty. For instance, the *Warmer Homes Scheme & Better Energy Homes Scheme* are only available to homeowners or housing association tenants, but not private tenants. Pre-assessment costs (e.g., the *Better Energy Communities* programme) – with the added risk of a decision potentially finding that a house is not eligible – also present a barrier to participation. Not all vulnerable households are eligible to participate in either the *Better Energy Warmer Homes* and *Better Energy Communities Scheme* under current eligibility criteria and the eligibility criteria across the various schemes are such that some vulnerable groups continue to fall through the cracks. Finally, there is a general lack of effective incentives to encourage private landlords to upgrade their housing stock and they are not incentivised by the promise of future bill savings.

4.3.5 Conclusions Ireland

To what extent do the various policies and interventions reflect a recognition of the specific needs of energy poor households – relating to personal resources, social resources, environmental resources?

The Irish government has a longstanding tradition of financial support measures directed at households vulnerable to energy poverty. When it comes to the recognition of specific needs relating to personal resources, the national government has not looked much further than a household's income situation in the past. The novel *Energy Poverty Strategy* is expected to introduce additional deep energy efficiency interventions for energy poor households and people who suffer from acute health conditions. This change of course in policymaking indicates a growing recognition of residents' personal resources, and other contributing factors such as health.

Several large Irish NGOs are very active in providing households with advice, training, information and other forms of support. The support they offer is based on the specific needs of vulnerable households such as having difficulty applying for funds or not being able to negotiate with the utility provider. The fact that households have difficulty in applying for funding in the first place is grounded in overly complex administrative procedures which misrecognise households' respective capabilities.

In terms of social resources, the NGOs are acknowledged by the national government and relevant stakeholders as important partners in reaching out to households. Contrarily, private landlords are insufficiently incentivised to increase the quality of the housing stock they provide. The recognition of the landlord as an important part of the tenants' social network provides significant scope for improving the situation of private tenants.

Until recently, national policies did not regard the quality of housing as a relevant criterion for alleviating the experience of energy poverty of an individual household. The *Energy Poverty Strategy* plans additional retrofitting measures for people living in poorly insulated houses thus acknowledging the importance of environmental factors to households belonging to the target group of energy poverty policies.

What are the (expected/likely) distributive impacts of the various policies and supportive interventions for energy poor households (considering personal, social and environmental resources)?

The focus in Ireland has primarily been on providing financial support with energy bills through the *Fuel Allowance* and the *Household Benefits Package* schemes, while also increasing energy efficiency of selected housing stock, mainly through the *Better Energy Warmer Homes Scheme* and the *Better Energy Communities Scheme*. The combination of these measures has had strong positive impacts with regards to energy poverty. Yet, private tenants are found to have less access to funds for housing improvements as a result of the different eligibility criteria. Current programmes are mainly directed at the social housing sector and home owners. Efforts to institutionalise the fight against energy poverty have led to the formation of the *Energy Poverty Advisory Group* which advises the public authority most responsible for the domain of energy poverty.

4.4 Energy poverty policy review the Netherlands

4.4.1 Introduction

In the Netherlands, energy poverty has only recently started to attract policy attention. The Dutch NCEP from 2019 mentions energy poverty, but states that no specific policy objectives in relation to energy poverty are formulated, since support for such households is considered part of general social policies to combat poverty (MinEZK 2019). Recognition of energy poverty by the national government is still rather limited.

The Netherlands performs much better than the EU average on both the population-reported indicators and in terms of expenditure-based indicators. As for the latter, the share of households that spend a high share of their income on energy expenditure is 10.7%. According to the EPOV in 2018, 2.2% of Dutch people reported that they were unable to keep their home adequately warm compared to the EU 7.3% average. Similarly for 2018, 1.5% of the population was unable to pay their utility bills on time due to financial difficulties, while the respective EU average is 6.6% (EPOV, 2020b). Energy poverty is most prevalent in the social housing sector where in 2017, 10.8% of residents were unable to adequately heat their home and 3.5% were behind in paying bills. However, private sector tenants and homeowners also are affected by energy poverty.

While the EPOV percentages are low in comparison with the EU averages, it appears that energy poverty is on the rise in the Netherlands. A recent study revealed that 11% of households in the province of Utrecht spend more than 10% of their income on energy and/or has insufficient money left for other needs after

having paid for housing and energy-expenses (Agterbosch *et al.*, 2020). Moreover, the risk is that energy transition policies that do not take into account energy vulnerability will increase energy poverty (Breukers *et al.*, 2020).

4.4.2 Policies at national and subnational levels

There are no national policies addressing energy poverty, since overall national poverty alleviation and related welfare programmes are considered sufficient in this regard (MinEZK 2019:47). Dutch national policies for addressing energy poverty stem from the social and housing policy domains – related to the relatively strong social housing and social support systems in the Netherlands, for instance, the tenancy allowance (*huurtoeslag*). The eligibility of this allowance has been widened in 2021 but the tax authority has reported that new groups that are eligible are probably not aware of this – as they do not make use of this support measure. There are various policies and programmes to support social housing associations to bring their housing stock to a higher energy performance level, as well as (generic) measures for home owners.

The Dutch energy transition policies increasingly have become intertwined with the ‘transition away from natural gas’. The policy decision to stop the extraction of natural gas in the Province of Groningen followed on the rising controversies around natural gas extraction, which has caused earthquakes resulting in severe damage to buildings. Hence, the Dutch decarbonisation strategy includes the target to phase out household use of natural gas through a neighbourhood-focused approach, an immense operation since most households use natural gas.⁷ To this end, 30 Dutch regions (which have no administrative competences like provinces and municipalities) have developed *Regional Energy Strategies*, to be translated into municipal *Heating Transition Visions* by the end of 2021, paving the path for phasing out natural gas consumption. One of the major challenges in this transition relates to the affordability of measures for households and this has triggered societal and political debates in recent years (Feenstra *et al.*, 2021; Breukers *et al.*, 2020). The *Regional Energy Strategies* do not explicitly address the potential challenge of an increase in energy poverty brought on by the energy transition, while some of the municipal *Transition Visions* do (e.g., Amsterdam, Nijmegen, Amersfoort) (Boot, 2021; Feenstra *et al.*, 2021). In addition, many municipalities make use of the *RREW*⁸ subsidy to finance energy coaching trajectories providing home visits, tailored advice and low-cost measures. Some municipalities choose to target vulnerable households in particular (Boot, 2021).

Social housing associations have an important role to play with 28% of Dutch households living in their properties. Several associations point out their limited options to address energy poverty with energy efficiency renovations since most municipal *Heating Transitioning Visions* are still being developed, creating uncertainty as to which heating system will be implemented in the nearby future. Interviews with representatives from eight housing associations in Amsterdam and Eindhoven showed that next to their role in improving energy efficiency of homes, they endorse social cohesion in the neighbourhood and make use of energy coaching to help tenants lower their energy bill. Four of them explicitly indicated the importance

⁷ By 2030, 1.5 million homes and other buildings are envisaged to have switched from natural gas to other sources of heating and cooking – which implies major infrastructural changes as well (e.g., new installations, heating systems, district heating, or strengthening of the electricity connections, etc.). By 2050, 7 million homes and 1 million other buildings have stopped using natural gas (Dutch Government, 2019).

⁸ *Regeling Reductie Energiegebruik Woningen* (RREW), a follow-up of an earlier RRE subsidy to target homeowners encouraging them to improve the energy efficiency of their homes.

of addressing energy poverty and indicated that due to their proximity they have a role in supporting energy poor households (Boot, 2021).

One national instrument to support vulnerable home owners to make their home more energy efficient and install new appliances in order to move away from natural gas is the *Energy Saving Mortgage*. It provides a loan which the applicant can pay back in accordance to his or her financial capacity. It includes the option of cancelling the pay-back after 10 years if the financial capacity is insufficient. This new arrangement is directly linked to the phasing out of natural gas and only available to home owners that live in a neighbourhood that is transitioning away from natural gas (PAW, 2021). Table 7 shows selected policy measures in view based on EPOV (2020b), to which other policies and measures that are relevant for the Dutch context have been added.

Table 6: Selected policy measures in the Netherlands (source: EPOV, 2020b with additions)

| Selected measures | Type of measure | Organisation | Target groups | Start year | Result |
|---|--|---|--|------------|---|
| Energy savings covenant rental sector | Building insulation, Heating system, Renewable energy | National government | Social housing | 2008 | 28% of Social Housing estates had received energy efficiency upgrades, albeit not achieving the required targets in the covenant. |
| Incentive scheme to improve energy performance of social housing | Building insulation, Heating system, Renewable energy | National government | Social housing | 2014 | Unknown |
| Disconnection protection households | Disconnection protection | National government | Vulnerable households | 2018 | Unknown |
| Energy bank | Energy audits, Energy bill support, Household appliances | NGO, Grid operator | Low-income households, households on social benefits | 2015 | The savings per household were between €56 and €113 per year. |
| Energy box | Energy audits, Household appliances | Business/ Industry, Local government, Grid operator | Private tenants, social housing tenants | 2014 | +5000 participants saving on average €113, 257 kWh and 85m ³ gas per year. |
| Electricity tax reduction for basic needs | Energy bill support | National government | No specific target group | 2011 | Not measured |
| Guide on energy subsidies | Information and awareness | National government | No specific target group | Unknown | Not measured |
| Energy Toolbox | Information and awareness | Local government | No specific target group | Unknown | Not measured |

| Selected measures | Type of measure | Organisation | Target groups | Start year | Result |
|---|---|--|---|--------------|--|
| RREW | Information and awareness | National government | Municipalities | 2021-2022 | Many municipalities applied for and received subsidy, total budget of €87 million. ^(a) |
| Energy-savings mortgage Loan-scheme | Financial assistance | National government | Vulnerable home owners who are not eligible for regular schemes (age, financial issues, etc). | 2021 | Unknown, started recently. ^(b) |
| Woningabonnement (Breda) | Financial assistance | Local government (Municipality) | Home-owners with limited financial clout | 2021 | Unknown, started recently as a pilot in Breda and several other municipalities experiment with similar instruments. ^(c) |
| Verzilverlening Custom loan available for energy efficiency improvements to the home | Financial assistance | Several municipalities in the province of Noord-Brabant. | All home-owners from 57 years and up with equity on their house. | 2018 | Unknown ^(d) |
| Energiewerkplaats (Utrecht, Noord-Brabant) | Information and awareness; Social support | Regional and local government | Relevant stakeholders | Recent years | Unknown ^(e) |

^(a) RVO (2021), ^(b) PAW (2021), ^(c) WoonWijjs Breda (2021), ^(d) SVN (2018), ^(e) Energiewerkplaats Utrecht (2021), Energiewerkplaats Brabant (2021)

4.4.3 Other public and private support

A first initiative to explicitly address energy poverty was *EnergieBank* (started in 2015, with branches in 5 municipalities) – also focused on energy coaching of energy poor households (EPOV 2020).

Several provinces have started to address energy poverty in a more active manner and in collaboration with municipalities and other stakeholders and networks (*e.g.*, Straver *et al.*, 2021). For instance, the province of Utrecht has explicitly committed itself to enable an affordable energy transition and actively engages with diverse stakeholders⁹ in order to learn how this is best accomplished.¹⁰

Several municipalities, NGOs and housing associations have started energy coaching trajectories (energy advisors doing home visits to provide advice and low-cost measures) (NL_SH1, NL_SH3, NL_SH7, NL_SH8). The RREW subsidy is used to finance these trajectories.

⁹ A provincial policy officer from Utrecht attended one of the Dutch EnergyMeasures stakeholder meetings on energy poverty (most other participants were organisations and individuals working on a more local level)

¹⁰ <https://www.energiewerkplaatsutrecht.nl/>

4.4.4 How do policy measures address the structural conditions underlying energy poverty?

Energy transition policy, social housing policy and debt prevention and energy poverty

The energy tax is organised such that it encourages further electrification and raises levies to pay for the energy transition. For households, natural gas use will be taxed more heavily in coming years, while the tax on electricity will decrease. An additional tax (*Surcharge for Sustainable Energy* or ODE) that is used to finance CO₂ reduction measures, will increase as well the coming years (ODE). The NECP mentions that the burden sharing of this *Surcharge for Sustainable Energy* between households and companies will be adjusted in favour of households (as it was the other way around). To this is added an increased tax reduction on the energy bill for households (MinEZK, 2019:74). However, this is more a redress of a disbalanced burden sharing that favoured companies over households in the past. All Dutch households receive an annual decrease on the energy bill to compensate for the increase in the cost of energy.¹¹ While this reduces the cost of energy to some extent, there is no support for energy poor home owners to make their homes more energy efficient – which would help reduce cost structurally and to a larger extent since the levies are per kWh or m² gas. This is illustrative of how national energy transition policies and the resource allocation that do not explicitly target energy poverty in a structural manner, may increase inequalities and energy vulnerability (Breukers *et al.*, 2020; Straver *et al.*, 2020; Feenstra *et al.*, 2021).

To ensure that the energy transitions will not result in a higher cost of housing, a follow-up on the Social Tenancy Agreement (2019-2021) has recently agreed on between the branch of social housing associations and the association that represents social tenants: Woonbond. In addition, an Action Agenda is developed and signed by and 34 organisations, in view of the shortage in availability of affordable and adequate housing. National government is not a partner in this agreement (unlike the association of municipalities) and the agreement explicitly states that the ambitions to improve the physical and social housing infrastructure are only feasible when appropriate national policy frameworks are put in place (Actieagenda Wonen, 2021). This action agenda mentions the role of municipalities in the early detection of debts, in relation to a legislative change in January 2021 to the *Law on municipal debt counselling* which states that municipalities have a legal task in the early detection of household debts – in collaboration and coordination with creditors such as insurance companies, energy suppliers, water companies and housing associations.¹² Municipalities are required to initiate action when they receive signals about overdue payments. In this way municipalities can prevent debt accumulation. However, it also enables municipalities to address energy poverty with relevant partners in an early stage (e.g., Eindhoven municipality plans to invite households to participate in an energy coaching based on the early debt detection information) (NL_SH2, NL_SH5).

As for the social housing stock, the *RenovatieVersneller* (*RenovationAccelerator*) aims at speeding up and scaling up the renovation of housing stock. However, applications by housing associations for the latter have been minimal, leaving the budget unused (possibly due to the rules for eligibility and administrative issue). In addition, a recurring complaint by the Dutch Housing associations is that due to the current levy that they pay (*Verhuurdersheffing*), they are left with insufficient resource to invest in large scale renovations (Boot, 2021; NL_SH4, NL_SH6).

¹¹ For more information see: <https://www.milieucentraal.nl/energie-besparen/inzicht-in-je-energierekening/energiebelasting-2021/>

4.4.5 Conclusions Netherlands

To what extent do the various policies and interventions reflect a recognition of the specific needs of energy poor households – relating to personal resources, social resources, environmental resources?

When it comes to a recognition of specific needs relating to personal resources, national policy does not recognise energy poor households as a target group for policy – nor their specific needs. At the same time however, many municipalities, often in collaboration with other local stakeholders (e.g., housing associations, NGOs) have initiated energy coaching programmes for low-income households which contribute to enhancing peoples' awareness and knowledge – thereby improving their personal knowledge resources. It is at the subnational levels of government (e.g., province, municipalities) that both public and non-governmental actors are increasingly active in addressing energy poverty. For instance, subnational pilots now target the financeability of home improvements for homeowners with limited resources - recognising that they cannot participate in the regular schemes that ask for upfront investment.

As far as social resources are concerned, some of the recently started programmes (e.g., *Energiewerkplaats Utrecht*) actively engage and align with local stakeholders and networks, aiming at strengthening both personal and social resources that energy poor households can draw on. It appears that these type of initiatives at provincial and municipal level will build and/or align with existing local networks of relevant stakeholders and households – and as such giving the latter voice to share their needs and ambitions.

As far as the energy efficiency of homes, heating systems and appliances is concerned, efforts to improve the quality of the social housing stock furthermore face several challenges (e.g., lack of clarity on the municipal approaches in phasing out natural gas; but also, a stated lack of resources on the part of housing associations). Tailored support for energy poor homeowners is at the stage of a few pilots (see above) and the private rental market is as of yet a sector that remains out of reach for national government.

What are the (expected/likely) distributive impacts of the various policies and supportive interventions for energy poor households (considering personal, social and environmental resources)?

Overall, in the Netherlands, national policy attends to general poverty alleviation and improvement of the social housing stock (yet not without setbacks). Recently, calls have been made for more attention to be given to energy poor and vulnerable households, in particular because the energy transition policies (and the phasing out of natural gas) are expected to have negative distributive impacts for energy vulnerable and poor households. However, while national government seems reluctant to provide a national policy framework, at subnational levels a governance agenda appears to be taking shape with the involvement of various public and private stakeholders.

A deficient national policy framework and of resources allocated to address energy poverty in the energy transition brings the risk that interventions and programmes initiated by provinces and municipalities diverge in terms of the effectiveness of the support they offer to energy poor households – thus causing divergences in the distributional impacts on households nationally. This risk has been pointed out before by Feenstra *et al.* (2021). In addition, the extent to which sub-national pilots eventually result in broader support programmes that improve the financeability of energy efficiency improvements, will also be affected by national policy and budget allocation.

4.5 Energy poverty policy review North Macedonia

4.5.1 Introduction

The term energy poverty is formally mentioned for the first time in the Macedonian Energy Law of 2011¹³ (Stojilovska and Zuber, 2013). Herein, the government commits itself to provide measures to combat energy poverty through a suite of measures including fuel subsidies and energy efficiency measures (Government of North Macedonia, 2018). The legislation of North Macedonia does not have a unified definition of the term energy poverty nor criteria for its identification, yet in 2020 a government programme did develop criteria defining vulnerable consumers (Government of North Macedonia, 2020).

Macedonian society is facing relatively high poverty rates in many aspects. According to the World Bank, approximately 4.4% of the population live under the international poverty line of US\$1.90 per day (World Bank Group, 2020), while according to the State Statistical Office, 21.6% live in poverty (State Statistical Office of the Republic of North Macedonia, 2020). North Macedonia ranks second highest within the EU in terms of households' inability to keep their home adequately warm (33.1%) in the year of 2019 according to Eurostat (2021b).

4.5.2 Policies at national and subnational levels

The Energy Law of North Macedonia mandates the creation of a long-term strategy that will deal with energy vulnerability and poverty (Government of North Macedonia, 2011). Long-term efforts to address energy poverty are also expected to be part of the Energy Development Strategy which is currently in development (Government of North Macedonia, 2018a). The Government has yearly programmes in place aiming at the reduction of energy poverty. The only criterion for determining an occurrence of energy poverty is the income parameter, whereby people qualify for subsidies if they are beneficiaries in other existing social assistance schemes. Table 7 provides a summary of the main measures that have been in place over recent years related to energy poverty and energy efficiency.

Table 7 Selected policy measures in N. Macedonia

| Selected measures | Type of measure | Organisation | Target groups | Start year | Result |
|--|-----------------|---------------------|---------------------------------|-------------|--|
| Program for subsidising the consumption of energy | Social support | National government | Households in social protection | 2010 - 2013 | Monthly financial support for energy bill, 20,000 households benefited, €1.7m spend in total. ^(a) |
| Law on Social Protection¹⁴ | Social support | National government | Vulnerable households | 2019 | Monthly payment of MKD1,000 (appr. €16) to vulnerable households. ^(b) |

¹³ Official Gazette of the Republic of Macedonia" no. 16/2011 and 136/2011

| Selected measures | Type of measure | Organisation | Target groups | Start year | Result |
|--|--|---------------------|-----------------------------|-------------|--|
| Program for protection of vulnerable energy consumers for 2021 | Social tariff, disconnection protection | National government | Vulnerable households | 2021 - 2022 | Households enrolled in social assistance schemes are not allowed to be disconnected during winter months and are exempted from paying for reconnection. ^(c) |
| Program for promotion of renewable energy sources and stimulation of energy efficiency in the households for 2021 | Heating systems, building insulation, renewable energy | National government | Low-income families | 2021 | Up to 70% reimbursement of installation of PV panels and modern heating systems by vulnerable households. ^(d) |
| Energy Law (adopted in 2018) | Legislative | National government | Energy consumers and market | 2018 | No reported results ^(e) |

^(a) Stojilovksa & Zuber (2013), ^(b) Government of North Macedonia (2019), ^(c) Government of North Macedonia (2020a), ^(d) Government of North Macedonia (2021), ^(e) Government of North Macedonia (2018b)

Measures offering direct financial support to vulnerable households include Article 42 of the *Law on Social Protection* and, until 2013, the *Programme for subsidising the consumption of energy* which co-financed the consumption of energy for families that were beneficiaries of the social protection scheme (Stojilovksa and Zuber, 2013).

In 2020, the *Program for protection of vulnerable energy consumers* emerged from the *Strategy for Energy Development of the Republic of N. Macedonia until 2040*. The programme defines the vulnerability of consumers according to the energy source they use (vulnerable consumer of electricity, vulnerable consumer of gas etc.) and features a number of measures to protect and support vulnerable households including prioritising the repairing of defects in vulnerable households, informing consumers about their rights, the deferment of due payments, and a disconnection ban during the winter months (Government of North Macedonia, 2020a).

The *Programme for promotion of renewable energy sources and stimulation of energy efficiency in the households for 2021* (Government of North Macedonia, 2021) offers different compensating measures for improving energy efficiency in households with a total funding capacity of MKD 52 million (€845.53). The increasing attention to energy efficiency of building stock is demonstrated in recent legislation such as the *Law on Energy Efficiency* passed in 2020, which stipulates that the government will have to develop and adopt a plan for renovating and upgrading residential and commercial buildings over the next 10 years (Government of North Macedonia, 2020b).

As North Macedonia is in the process of EU integration, in the coming years a greater harmonisation of national policy with the EU policies and measures is expected. In line with that, new legislative modes for poverty alleviation are also likely to be adapted in the country in the coming years.

4.5.3 Other public and private support

Different local schemes and programmes aim to improve the energy efficiency of households, for example subsidies by the Municipality of Karpos for renovating facades or subsidies by the Municipality of Gostivar for buying inverter air conditioners. Interviews with stakeholders reveal that the local governments do not target energy vulnerable/poor households directly (MK_SH1, MK_SH2) unlike programmes by the central national government such as the *Program for protection of vulnerable energy consumers*. An exception is an initiative by NGO *Habitat for Humanity Macedonia* which renovated the homes of vulnerable homeowners in multi-family apartment buildings to increase energy efficiency using municipal funding (MK_SH5).

4.5.4 How do policy measures address the structural conditions underlying energy poverty?

Increasing attention for energy efficiency

In the past, government support schemes targeting energy poor and vulnerable households in North Macedonia have been characterised by direct monetary transfers, while the underlying structural conditions causing energy vulnerability and poverty have been generally neglected. In this regard, recent policies aiming at improving the energy efficiency of buildings by the national as well as different local governments are notable.

Collaborations in the private sector

An interview with a private company (MK_SH4) indicated that there is some level of collaboration between the private sector and non-governmental organisations that assist households in improving their energy efficiency. The company which the interviewee represented had assisted in providing energy audits for multi-family apartment buildings. The audits are the basis for improving the energy efficiency of those buildings. However, the collaboration between the private sector companies and the government organisations seems to be limited.

Education on energy efficient behaviour

Apart from the regulatory or voluntary initiatives, interviews showed that little or nothing is done to address the behavioural aspects of energy efficiency (MK_SH3).

4.5.5 Conclusions North Macedonia

To what extent do the various policies and interventions reflect a recognition of the specific needs of energy poor households – relating to personal resources, social resources, environmental resources?

Current energy poverty policies differentiate households according to their income situation. Households which receive social support are eligible for additional financial aid. Apart from this no criteria related to the households' personal resources such as education, health or capabilities are considered. Under the *Programme for protection of vulnerable energy consumers*, consumers are intended to receive information about their rights related to the provision of services they are entitled to. Apart from that, programmes for advice and information dissemination are mostly absent.

Under the *Law on Energy*, energy scans on buildings are performed involving NGOs as partners. This shows that non-public organisations are recognised to some degree by the national government.

In terms of the recognition of environmental resources, Macedonian legislation acknowledges the type of fuel that households use, *i.e.*, “consumer of gas” or “consumer of “electricity” *etc.* The building scan initiative assesses the type of building that vulnerable households live in, allowing for measures geared towards the energy efficiency of those buildings. Some local governments also take note of the type of heating system that households have in place when providing support.

What are the (expected/likely) distributive impacts of the various policies and supportive interventions for energy poor households (considering personal, social and environmental resources)?

The national policies to mitigate energy poverty have mainly been direct subsidies of energy consumption. Due to the lack of monitoring the impact of this support on households’ situation is not assessable. In most cases the criteria for qualifying for social transfers are the income that a household has had during a period of time or the payment of bills for a period of time, while criteria relating to energy efficiency have been neglected. Recent changes in legislation and the adoption of new strategies for energy efficiency are showing a movement towards improving efforts to address the energy poverty.

4.6 Energy poverty policy review Poland

4.6.1 Introduction

In recent years the subject of energy poverty has gained increasing attention by Polish researchers (EPOV, 2020b) including the development of multidimensional indicators for energy poverty (EPOV, 2020a) and the impacts of the Covid-19 pandemic on energy poverty in Poland (Frankowski *et al.*, 2020).

The issue is also receiving increased recognition by policy makers as presented by the current development of the *Energy Poverty Act* and the Polish *National Energy and Climate Plan (NECP)*. As part of this effort, the Polish statistical office collects relevant data on energy poverty and related issues through the Polish Households Budget Survey (Bouzarovski *et al.*, 2019). In Poland the Institute for Structural Research frequently publishes on developments and the status of energy poverty in the country.

An estimated 10% of Polish households live in energy poverty according to the multidimensional indicator used by Frankowski & Sokołowski (2021). The rate of people who cannot afford to keep their houses adequately warm has decreased significantly during the last decades (5.1%) and is now below the EU average (7.3%) (EPOVb, 2020). Residents of detached houses have higher relative heating costs leaving them more vulnerable to energy poverty than for instance residents of multifamily buildings (Bouzarovski *et al.*, 2019). Energy poverty is relatively more common in smaller towns in rural areas where 66.6% of energy poor households live. In these areas the lack of adequate infrastructure is estimated to contribute to higher rates of energy poverty (EPOV, 2020b). Energy poor households often make use of cheap and inefficient forms of solid fuel such as coal and wood. This practice poses a serious health hazard with the resulting particulate matter from burning such fuels linked to the serious illnesses including respiratory disease and cancer (Sokołowski *et al.*, 2020; Karprinska and Smiech, 2020). As such, energy poverty is often linked to the issue of air pollution (EPOV, 2020b).

4.6.2 Policies at national and subnational levels

Currently, the main policy directed at vulnerable and energy poor households is the *energy allowance* (EPOV, 2020b). However, the Polish government is developing legislation targeting energy poverty, the so-called *Energy Poverty Act*. Among others it is expected to introduce a special energy tariff for vulnerable consumers that meet certain criteria. Furthermore, the *NECP (2021-2030)* aims to mitigate against energy poverty through various measures including the improvement of the energy efficiency of buildings, granting flat-rate and anti-smog allowances to vulnerable households, and expanding the district heating network (EPOV, 2019). The NECP aims to develop a uniform definition and methodology for energy poverty – currently different institutions use different definitions – as well as a coherent methodology for diagnosing energy poverty and a statistical model to monitor the scale of the phenomenon in Poland (EPOV, 2019; Polish Government, 2020). Both, the NCEP and the *Energy Policy Act* give testimony of the increasing attention for energy poverty by policy makers and efforts towards its institutionalisation.

Polish energy poverty policies and measures are strongly linked to efforts to improve air quality, illustrated by the *Clean Air Programme*, the *Stop Smog Programme*, local *Low-Stack Emission Liquidation Programmes*, and the *Polish Energy Strategy until 2040* (EPOV, 2020b). The latter aims to prevent emissions by vulnerable households through encouraging thermal retrofitting and the replacement of high-polluting heat sources. The rationale behind linking these two policy areas is the high level of air pollution in Polish cities, partly caused by the incineration of solid fuels such as wood and coal (Karprinska and Smiech, 2020). However, current policy support schemes do not do enough to ensure the improvement of a buildings' energy efficiency with the best value for money. For instance, when granting a subsidy for the replacement of an old heat source with a new one, this is not paired with a parallel possibility to finance or cofund the thermal retrofit of the building to increase energy efficiency and improve living conditions. The change to a new heat source is best done considering the heating needs after a thermal retrofit has been completed. This practice alone would mitigate against excessive waste and misdirected investments in the wrong types of heating sources that result from poorly planning (EnergyMeasures, 2021). The Polish policy landscape addressed the outbreak of the Covid-19 pandemic by introducing a ban on disconnections and by offering the deferment of energy payments (EPOV, 2020a). Table 8 provides an overview of relevant policy measures based on the EPOV reports and additional policies relevant for the institutional context of Poland.

Table 8: Selected policy measures in Poland (source: EPOV, 2020b; with additions)

| Selected measures | Type of measure | Organisation | Target groups | Start year | Result |
|--|-------------------------------------|---------------------|---|------------|---|
| Clean Air 2.0 (formerly: Clean Air programme) | Building insulation, Heating system | National government | Physical persons – owners or co-owners of single-family residential buildings | 2018 | The Clean Air Program provides financing to improve heating systems in households, as well as to thermally retrofit them. |
| Energy lump sum | Energy bill support | National government | Pensioners | Unknown | This measure provides financial assistance for energy bills to people that were involved in military operations or wars. |
| Energy allowance/Housing allowance | Energy bill support | Local government | Low – income households | 2014 | This measure provides financial assistance to households to pay their electricity bills. Energy allowance is grant to |

| Selected measures | Type of measure | Organisation | Target groups | Start year | Result |
|--|--|---------------------|--------------------------|-----------------------------|---|
| | | | | | households receiving housing allowance. |
| National consultancy support system for the public sector, the residential sector and enterprises in the scope of energy efficiency and RES | Information and awareness | National government | No specific target group | Unknown | This project aims to support different stakeholders in Poland to improve energy efficiency by providing guidance and information. Advisors are available that can give households information on how to improve energy efficiency. |
| Special purpose allowance | Social support | National government | Low – income households | Unknown | This measure can be given in certain cases to meet basic needs, including fuel and energy expenses. ^(a) |
| Energy Poverty Act | Social tariff, Building insulation, Heating system | National government | Vulnerable households | Currently under development | The act aims at mitigating energy poverty and protecting the most vulnerable households from increasing energy prices, among others by introducing special tariff for households meeting pre-defined social criteria. <i>e.g.</i> , level of income. ^(a) |
| Stop Smog Programme | Energy bill support | National government | Vulnerable households | 2018 | Co-finances thermal retrofitting and modernization of heating system; 11,000 energy poor households participated within two years. ^(a) |
| Local co-funding schemes supporting private households in switching towards more environmentally friendly sources (example: <i>Low-Stack Emission Liquidation Programme</i> from Bielsko-Biala) | Heating system | Local government | No specific target group | Varying per city | Co-funding replacement of old and inefficient boilers in private households with more environmentally friendly heat sources. Example of Bielsko-Biala: replacement of 2,414 coal-fired boilers since 2007, saving 9,712t CO ₂ emissions. ^(b) |
| Ban on energy disconnection during Covid-19 pandemic | Disconnection protection | National government | No specific target group | 2020 | Protecting households from being disconnected from energy and heating grid during Covid-19 outbreak. ^(c) |
| Deferrals of energy payments | Energy bill support | Energy Companies | Vulnerable households | 2020 | Offer of payment deferrals on case-by-case during Covid-19 pandemic. ^(c) |

^(a) PL_SH3, ^(b) EnergyMeasures (2021), ^(c) EPOV (2020a)

4.6.3 Other public and private support

Municipalities address energy poverty beyond the national policy framework through home visits, consultancy services, trainings and other educational support. These measures are mainly directed at awareness raising and capacity building (EnergyMeasures, 2021). Some of them also introduce local co-funding schemes for the replacement of inefficient heat sources and for installing RES (PL_SH1). For instance, the City of Bielsko-Biala, which is participating in the EnergyMeasures project, initiated the *Low-Stack Emission Liquidation Programme*. It offers a subsidy for replacing outdated and highly emissive domestic heating systems. The programme corresponds with the national policy trend of addressing the issues of energy poverty and air pollution simultaneously (PL_SH1).

4.6.4 How do policy measures address the structural conditions underlying energy poverty

Co-funding programmes to improve energy efficiency

Co-funding energy efficiency improvements of buildings is seen as key to improving householders' situation in the long term (EPOV, 2020a, PL_SH1, PL_SH3). The programmes co-funding the implementing of energy efficiency measures, such as *Clean Air 2.0*, benefit households both financially and in terms of comfort. Local NGOs and research facilities are reported to visit people in their homes as part of educational programmes and consultancy services (PL_SH3). During these occasions consultants are able to assess leaks, dampness and the household's ability to keep the house adequately warm. This allows for an assessment of the household's situation in terms of their lived experience instead of merely looking at income. Consequently, more tailored advice for energy efficiency measures can be given.

Programmes that promote more environmentally friendly energy sources by private households either co-fund the upgrading of the existing heating system or the installation of newer domestic RES systems. The *Stop Smog Programme* and many local funding schemes fall into the first category. The substitution of wood- and coal-fired heating systems with more efficient natural gas-fired boilers is estimated to positively impact on overall air quality. However, the dependency of low-income households on natural gas as an energy carrier will have negative financial consequences as traditional solid fuels are cheaper in price. Several subsidies for domestic RES installation are in place, but since these require high upfront investments, they are not accessible to energy poor households that cannot make these investments.

In many cases households need additional assistance in applying to the available support programmes, e.g., to collect the required documents (PL_SH1). The question arises in how far the target group benefits from the support offered given the initial barrier of applying and how measures could be improved to cover more households in need.

Energy bill support

Many households depend on immediate financial aid for paying bills, such as allowances. The allowances help to cover part of the energy bill and thus reduce overall energy expenses. However, the measures have some shortcomings. First of all, the reimbursement of the energy allowance, which is granted to vulnerable consumers, is relatively low and restricted only to the beneficiaries of the housing allowance, excluding many households from applying or being eligible (PL_SH3). Interviewed stakeholders highlighted that the co-funding of bills should be more directly targeted towards those who are in need, and that clear criteria need to be established to this end (PL_SH1, PL_SH2). Secondly, more generally, financial support in covering bills may disincentivise households to manage their budgets and energy consumption well, in addition to implementing energy efficiency renovations (PL_SH1). These considerations lead to the question in how far the energy bill support in its current form is suited for improving the long-term situation of the energy poor.

Awareness-raising

There are various campaigns to raise citizens' overall awareness of energy-related issues; to educate them about the importance, benefits and ways of energy saving, as well as informing them about different types of energy sources and how these impact health conditions (PL_SH1, PL_SH2). Consultations and support offered at the national or local level, such as the eco-advisers in the Małopolska region municipality, help people to understand which type of low-cost and no-cost energy efficiency measures they can implement in

their homes and where to seek support to cover the cost of more expensive measures. At present, it remains difficult to measure the success of awareness-raising campaigns (PL_SH1), and - even if successful - they do not automatically lead to the desired behavioural change (PL_SH3), these forms of support are considered necessary by those policy actors interviewed for the project.

Energy billing by housing associations

Housing associations are often in charge of the billings process in Polish multi-storeys buildings. The process of cost division is often highly complex and not transparent (PL_SH1). The costs fluctuate and arbitrary “compensation bills” are frequently issued, none of which correlate with the actual amount of energy actually consumed. This jeopardises tenants’ efforts to monitor and effectively manage their energy usage.

4.6.5 Conclusions Poland

To what extent do the various policies and interventions reflect a recognition of the specific needs of energy poor households – relating to personal resources, social resources, environmental resources?

National policy does not operate with a legal definition of energy poverty in place, nor is there a uniform methodology for its assessment yet. In most cases the policy measures/support schemes implemented are based on the income criterion only, not recognising other specific needs of energy poor households and hence any distributional impact.

In terms of policy recognising specific needs relating to personal resources such as knowledge and skills, these are addressed in various (sub-)national programmes and initiatives that aim at energy awareness raising – through home visits, consultancy services, trainings and other educational support. Such support is important and would benefit from more attention being given to assisting householders when applying to support programmes, as the administrative hurdles at present continue to act as a barrier to vulnerable households.

As for the recognition of social resources, policy measures at different levels are often consulted and implemented in collaboration with relevant stakeholders, but there is a need for even more concerted actions, using each other’s knowledge and channels of communication. The policy measures and other interventions could build more on existing networks and initiatives in order to better reach energy poor or vulnerable households.

As for attention to environmental resources such as the energy efficiency of buildings, heating systems and appliances, while policies that target the quality of buildings and the heating systems are there these programmes are not yet targeted at the energy poor, nor do they always seem to guarantee the improvement of a buildings’ energy efficiency in keeping with the best value for money.

Several local programmes that offer advice give energy poor households influence in choosing for measures that fit best with their particular situation.

Sub-national programmes that promote the substitution of wood- and coal-fired heating systems with natural gas-fired boilers may help improve the air quality, but show a lack of recognition of the negative financial consequences when moving from cheap traditional solid fuels to more expensive natural gas.

What are the (expected/likely) distributive impacts of the various policies and supportive interventions for energy poor households (considering personal, social and environmental resources)?

The direct energy allowances that are currently in place, support many households in lowering the cost of energy, but they also exclude many vulnerable households – having an uneven distributional impact on energy poor households. National and local co-funding programmes implemented in Poland co-finance concrete interventions in buildings – thermal insulations, modernisation of heating system, installation of RES. However, several programmes are not accessible for energy poor households – e.g., when upfront investment are asked for or when expensive heating solutions are proposed – and this has negative distributional impacts – also on health if energy poor households are not in the position to change their heating source.

Overall, the current Polish legislation lacks a unified definition of energy poverty, coherent policy frameworks addressing energy poverty, and a methodology for assessing it. With the adoption of the NECP and Energy Poverty Act, a better integrated support framework for energy poor and vulnerable households should take into account the above-mentioned omissions.

4.7 Energy poverty policy review UK, focusing on Scotland

4.7.1 Introduction

The Scottish policy framework concerning energy poverty is partly dependent on the course set out by the UK Government. In reviewing the Scottish policy context, which is the focus of this chapter, it is therefore frequently referred to as the institutional framework of the UK. Research on energy poverty has its origins in the UK where the matter has been extensively researched (EPOV, 2020b) ever since the seminal work of Boardman (1991) (also see Day *et al.*, 2016; Middlemiss and Gillard, 2015; or Walker and Day, 2012).

Each of the four devolved nations of the UK has their own strategy to address energy poverty and improve the energy efficiency of housing (UK Parliament, 2021). Of these four, Scotland is reported to have the most comprehensive approach on addressing energy poverty (EPOV, 2019). It has formulated a definition of energy poverty¹⁵, quantified targets for reducing energy poverty in the mid- and long-term future, and a methodology for measuring energy poverty (Scottish Government, 2020). Scottish ministers are advised by the Fuel Poverty Advisory Panel and relevant data on energy poverty, particularly in relation to housing, is collected under the Scottish Housing Condition Survey (Scottish Government, 2020).

In 2019, 24.6% of Scottish households were in energy poverty and 12.4% in extreme energy poverty (Scottish Government, 2020). Of the four nations of the UK, Scotland has the highest energy poverty rate (England: 13%, Wales: 12%, Northern Ireland: 18%). Energy poverty rates are higher in remote rural areas (43%) than in rural (29%) or urban (24%) areas, primarily due to the larger housing in remote areas. Energy poverty is more common in the social housing sector and among elderly people, than it is in the private housing sector.

4.7.2 Policies at national and subnational levels

The Scottish Government passed the *Fuel Poverty Act* in 2019, a landmark policy which provides a definition of fuel poverty and sets mid- and long targets for fuel poverty reduction. The aim for 2040 is that no more

¹⁵ In the UK energy poverty is commonly referred to as “fuel poverty”.

than 5% of households live in energy poverty and that the energy poverty gap is below £250 (Scottish Government, 2018). All recognised drivers of energy poverty are addressed to achieve this aim: energy efficiency, household income, energy prices and consumption (O'Brien, 2020).

The draft version of the *Fuel Poverty Strategy* suggests measures beyond the implementation of individual programmes, including an assessment tool for energy poverty and frequent reporting on the advancement of the various policy initiatives (for more details see section 1.1.4). The strategy commits to the aims set out in the *Fuel Poverty Act* (Scottish Government, 2018a).

The Scottish Government offers an array of different funding schemes for improving housing quality and supporting the installation of more efficient energy systems: the *Home Energy Efficiency Programmes for Scotland: Area Based Schemes*, the *Warmer Homes Scotland* scheme and an interest-free loan scheme for home owners-occupiers. The *Decent Homes Programme* by the UK Government specifically targeted social housing for improvement in England (EPOV, 2020b). In Scotland this is delivered as part of the Energy Efficiency Standard for Social Housing 2014.

Measures to support households in paying their energy bills are or have been mainly granted by the UK Government, e.g., the *Warm Home Discount*, the *Winter Fuel Payment* and the *Cold Weather Payment* (EPOV, 2020b). On the national level the *Fuel Bank Voucher scheme* and a payment under the *Scottish Recovery Plan* offer financial relief to households stricken with energy poverty (Scottish Government, 2021). Table 9 presents a number of policies that are relevant for the context of the UK and Scotland.

Table 9: Selected policy measures in the UK and Scotland (source: EPOV, 2020b with additions)

| Selected measures | Type of measure | Organisation | Target groups | Start year | Result |
|--|--|---|---|------------|---|
| United Kingdom | | | | | |
| Energy Company Obligation | Building insulation, Heating system | Supra-national government, Energy suppliers | Low-income households Vulnerable households | 2013 | 500,000 insulation measures taken per year since scheme inception. |
| Decent Homes Programme | Building insulation, Heating system | Supra-national government | Social housing | 2000 | Over million social homes improved in first 10 years. |
| Winter Fuel Payment | Energy bill support | Supra-national government | Pensioners | 1997 | 12.21 million GB residents received payment for winter 2015/2016. |
| Cold Weather Payment¹⁶ | Energy bill support | Supra-national government | Households on social benefits, Low-income household | - | 131,000 payments in winter 2016-2017, total expenditure of £3.3m. |
| Warm Home Discount | Energy bill support, Information and awareness | Supra-national government, Energy suppliers | Households on social benefits, Low-income household | 2011 | £320m support provided to vulnerable consumers between April 2015 and March 2016. |
| Energy Price Cap | Social tariff | OFGEM (regulator) | Vulnerable households | 2019 | Unknown |

² In Scotland the *Cold Weather Payment* has been replaced by the “Cold Spell Heating Assistance” in 2020/21. Both schemes work in a similar way (O'Brien, 2020).

| Selected measures | Type of measure | Organisation | Target groups | Start year | Result |
|---|--|--|---|------------------------------|---|
| Scotland | | | | | |
| Fuel Poverty (Targets, Definition and Strategy) Act | Building insulation, Heating system, Energy audits, Energy bill support, Information & awareness | National government | Vulnerable households | 2019 | Ambitions 5% of energy poverty and 1% of extreme energy poverty rate as well as a maximum energy poverty gap of £240 by 2040. ^(a) |
| Fuel Poverty Strategy (Draft)¹⁷ | Building insulation, Heating system, Energy audits, Energy bill support, Information and awareness | National government | Vulnerable households | 2018 | Ambitions 5% of energy poverty and 1% of extreme energy poverty rate as well as a maximum energy poverty gap of £240 by 2040. ^(b) |
| Home Energy Efficiency Programmes for Scotland: Area Based Schemes | Building insulation, heating systems, renewable energy generation | National government | Vulnerable households | 2013 | Delivered energy efficiency measures to 87,000 households since 2013, made £374 million available to local authorities for delivery of efficiency measures (mostly solid wall insulation), 15,500 households reached in 2017/18. ^(c) |
| Warmer Homes Scotland | Building insulation, Heating system, renewable energy generation | National government (via Home Energy Scotland) | Private sector households (renter or owner-occupier), vulnerable households | 2015 | Provides loans to vulnerable households. Helped more than 18,000 energy poor households, worth at least £16 million per year for up to seven years. ^(d) |
| Energy Efficient Scotland | Building insulation, Heating system | National government | Housing sector | To be announced ¹ | Not yet implemented due to Covid-19, if enacted would affect EPC of large number of homes by demanding that an EPC grade C must be achieved at the point of sale, refurbishment or purchase. ^(e) |
| Home Energy Scotland Interest-free Loan Scheme | Building insulation, Heating system | National government (via Home Energy Scotland) | Home owner-occupier | Unknown | Provides £5000 for energy efficiency measures, 40% cashback for energy efficiency measures and 75% for installation of renewable heating systems. ^(f) |
| Fuel Bank Voucher Scheme | Social support | National government | Vulnerable households | Unknown | Over 10,000 vouchers have been issued. Each voucher is worth £49 with a maximum of 3 vouchers per household. ^(g) |
| Scottish Recovery Plan | Social support | National government | Low-income households | 2021 | Paying £100 as part of the £520 support for low-income families - the equivalent of the Scottish Child Payment. ^(h) |

^(a) Scottish Government (2019^a), ^(b) Scottish Government (2018), ^(c) Scottish Government (2019^b), ^(d) Home Energy Scotland (2020^a), ^(e) EnergyMeasures (2021), ^(f) Home Energy Scotland (2020^b), GB_SH2, ^(g) GB_SH1, ^(h) Scottish Government (2021)

¹⁷ Development and publication postponed due to Covid-19

4.7.3 *Other public and private support*

In the Outer Hebrides – a remote rural area particularly vulnerable to energy poverty – a number of organisations joined forces to mitigate energy poverty. Policy coming forth from these efforts include the *Outer Hebrides Local Housing Strategy* (Housing Services Comhairle nan Eilean Siar, 2017) and the *Hebridean Housing Partnership (HHP) Investment Works Programme* (HPP, 2015). These initiatives link energy poverty with the issues of health, housing, well-being and sustainability. This holistic approach leads to the recognition of people’s everyday situation allowing for advice more aptly tailored to the needs of individual households. Conversely, the case of the Outer Hebrides shows how policies can be adapted in order to resonate with residents’ needs. In the Outer Hebrides for example, residents who are not connected to the gas grid are enabled in the development of micro-generation units from renewable energy, decreasing their dependence on an external energy supply (EnergyMeasures, 2021). The pilot project *HES Homecare* initiated by the national government included face-to-face interactions with a highly vulnerable household in a remote rural area. Similar to the case of the Outer Hebrides the project showcased that personal interaction brings issues to the fore which would have otherwise gone unnoticed such as a broken shower, disputes with the landlord about renovations and the choice not to use the more modern and efficient heating system due to higher immediate costs. Lessons from the pilot are taken into consideration during the development of the *Energy Efficient Scotland* policy (Scottish Government, 2018b).

4.7.4 *How do policy measures address the structural conditions underlying energy poverty?*

Scotland’s Fuel Poverty Strategy

The initial draft version of the Fuel Poverty Strategy for Scotland aims to address a number of structural factors responsible for energy poverty:

- Addressing the four recognised drivers of energy poverty: energy efficiency, fuel prices, income and energy consumption
- Adapting national policies to better fit the local context using a network of locally involved partners
- Providing tailored advice to households and paying attention to the “customer journey” of households when applying for measures or informing themselves, for instance, offering advice tailored to the capabilities of non-native English speakers
- Increasing general level of income and the number of jobs

The strategy acknowledged that energy poverty itself is influential on other societal issues such as health, inequality and national prosperity (Scottish Government, 2018a). A further iteration of the draft Fuel Poverty Strategy is being published in the Autumn of 2021.

Uptake of support by households

Despite national advisory programmes, households might not always be aware of the support that they are entitled to (GB_SH1). This raises the question whether policies sufficiently anticipate people’s need for information about the support which they avail of. Under the *Fuel Poverty Strategy* awareness raising about available support measures is foreseen to take place via partnerships (Scottish Government, 2018). In the stakeholder interviews it is mentioned that disseminating information and spreading awareness via a broader network of partners is a particularly effective approach (GB_SH2).

A barrier which prevents people from making use of the policies is the reluctance to admit that they are in poverty (GB_SH3). This is especially true for elderly citizens living in rural areas which are simultaneously most vulnerable to energy poverty. Several stakeholders emphasise the importance of building up a personal relationship with householders in order to increase acceptance and successful implementation of measures (GB_SH2, GB_SH3). Prior to the Covid-19 crisis lots of outreach was achieved through informal events such as tea and coffee mornings or during community hall sales (GB_SH2).

The *Warm Home Discount* is a UK-wide measure that offers vulnerable households a one-off £140 discount on their energy bill during the winter months. It has been reported to lack assistance during the application procedure, especially for people with physical and mental health conditions and with digital unproficiency. The varying eligibility criteria and the short application window are additional shortcomings of the programme (O' Brien, 2020). These entry barriers offer an explanation as to why a majority of households in fuel poverty have not received the *Warm Home Discount*.

4.7.5 *Conclusions Scotland*

To what extent do the various policies and interventions reflect a recognition of the specific needs of energy poor households – relating to personal resources, social resources, environmental resources?

In Scotland, the personal resources of households are taken into consideration by current national support measures in as far as they are income and passport benefit related. Relevant characteristics of the target groups are overlooked, such as the capability of applicants to successfully apply to a given programme. The initial draft *Fuel Poverty Strategy* sets a different tone by stating the intention to “improve the customer journey”, including for people who are less proficient in the English language. This speaks of an increasing recognition of personal resources by key policy-making institutions. Several local initiatives engage in the empowerment of households by promoting the health, care and general well-being of people when addressing energy poverty.

The involvement of local partners who understand the local people, culture and language is seen as a key for delivering more tailored support to vulnerable households by relevant stakeholders. The Scottish Government acknowledges the important role local agencies can play in addressing vulnerable households as part of the *Fuel Poverty Strategy* and aims at actively developing and building partnerships. Inhabitants of remote rural Scotland are on average much more vulnerable to energy poverty than elsewhere. Policies such as the *Area-based Schemes* delivered at a local municipality level account for differences between urban and rural dwellings, thereby acknowledging the need for differentiated support according to environmental resources such as the quality and size of housing.

What are the (expected/likely) distributive impacts of the various policies and supportive interventions for energy poor households (considering personal, social and environmental resources)?

The combined legislative framework of the UK and Scotland provides households vulnerable to energy poverty with a broad array of support measures, including several loans for increasing dwellings' energy efficiency and schemes co-financing the payment of energy bills. The quality of housing in the country has been significantly improved through these measures. Particularly successful in term of reducing energy costs and citizen uptake is the *Area-based Scheme*, which is state-funded and implemented by municipalities. The government's ambitious energy poverty policies have also manifested themselves in the formation of the

Fuel Poverty Advisory Panel, an independently chaired advisory organ to the Scottish ministers. This panel is to become a statutory obligation, overseeing delivery against targets of the Fuel Poverty Act of 2019.

5 Discussion of findings

The previous sections presented overviews of the most relevant policies, as well as of other initiatives to alleviate energy vulnerability and energy poverty in the seven participating countries. The overviews were based on both EPOV policy reviews and additional inputs gathered through desk-research, interviews, and based on the knowledge and experiences of consortium partners that work daily in the area of energy poverty alleviation. Rather than providing a list of policies, we have looked at the findings through an analytical lens that allowed us to make sense of how current policy frameworks and initiatives are suitable to address energy poverty as a multi-faceted phenomenon that is increasingly interwoven with energy and climate policies (which in themselves have a redistributive impact). At the EU level, the *Clean Energy for all Europeans Package* (EC, 2015) proposes a just and fair transition, and the alleviation of energy poverty is considered a key part of this. Member states are required to develop criteria for the assessment of the number of households in energy poverty. NECPs and renovation strategies are to set out energy poverty reduction objectives, timeframes and relevant policies and as such, the EU policy framework provides both a strong impetus as well as guidance (also via EPOV) to member states. It is yet too early to see the results of the transposed EU guidance (except for a more explicit recognition of the energy poverty in policy discourse).

5.1 Comparative discussion on policy

Comparing the conclusions for the seven countries, several issues stand out and we will discuss these, highlighting social resilience resources (personal, social and environmental) and by going into the distributive implications of the ways in which policy currently addresses energy poverty.

As for the recognition of **personal resources**, in most countries national policies currently mainly consider income and do not consider skills, awareness, competences and knowledge as relevant areas to address as part of their national policy. Besides, difficulties caused by administrative hurdles and complexities are mentioned (BG, BE, PL, IR, UK)¹⁸ as serious barriers for energy poor households which can be tackled by strengthening social resources. Health is another example of a personal resource that is currently hardly recognised (*e.g.*, fuel allowances in Bulgaria and Poland have negative impacts on health for those making use of these). New Irish energy poverty policy is explicit about recognising health as key consideration. In fact, several new energy poverty policy frameworks also to some extent recognise the importance of personal resources. What we see is that currently it is mostly local public and non-governmental organisations and initiatives that help strengthen the personal resources of energy poor households – *e.g.*, through energy coaching, home visits, debt counselling, support with administrative paperwork. In Ireland, UK/Scotland and Belgium the networks of such organisations appear to be most developed and most likely to offer needs-based support to energy poor households. In Bulgaria, Poland and North Macedonia it appears that the role of municipalities is becoming more important, but the engagement of other local partners shows much room for improvement. In the Netherlands, recent attention paid to the issue of energy poverty has

¹⁸ We use the country acronyms here to refer to the policy reviews of these countries in Section 4

resulted in various provinces, municipalities and (existing) networks gathering and exchanging ideas and experiences on how to best support energy poor households.

The prevalence of sub-national, regional and local actors in strengthening **social resources** reflects how these actors are well-positioned due to geographical proximity, experience with the target group, and are already part of networks that work with the same target group (to varying degrees). This is confirmed by previous comparative policy analysis pointing out that having a diversity of measures in place at multiple levels of governance is more effective than having a limited range (Bouzarovski *et al*, 2021; Middlemiss *et al*, 2020). Our previous report on citizen views on policy needs (Breukers *et al*, 2021) moreover highlighted the importance of intermediary actors at sub-national levels to strengthen social resilience as an important avenue to alleviate energy poverty, *e.g.*, by providing direct practical support to implement measures, mediating between households and institutional actors, providing support in dealing with the institutional system, providing support in community building *etc.* Literature confirms these findings to some extent (Ambrosia-Albala *et al*. 2020; Grossman *et al*. 2021). However important the role of sub-national actors may be, national policy remains crucial in acknowledging this and in ensuring that budget allocations reflect such an acknowledgement. Some newly developed national policy frameworks appear to be doing this (*e.g.*, UK and Ireland), which is underlined by the instalment of Advisory Groups that include various stakeholders.

As for the specific characteristics of the so-called **environmental resources** – the energy efficiency of homes, heating systems and appliances – the following issues merit attention. Some countries focus on social housing (*e.g.*, NL, BE) which makes sense of course as it appears easier to work with this sector than with energy poor homeowners or the private rental market. However, the lack of effective approaches to address the private rental market is problematic (in IE, BE and NL). Moreover, support for home owners, when it is in place, overall does not consider that the upfront investments needed are a barrier for energy vulnerable or – poor home owners (BE, PL, NL). In the Netherlands, some pilots now focus on the financeability of energy efficiency improvements for this particular group and in Belgium there are also a few sub-national initiatives attending to vulnerable home owners.

Heating systems also present challenges. In Bulgaria and Poland there are municipal programmes that support the adoption of less-polluting heat pump or natural-gas based heating systems, yet these are likely to increase the cost of energy for energy poor households. In the Netherlands, the accelerated transition away from natural gas also causes insecurity on how that will affect the cost of energy in the longer run.

Overall, attention to the specific characteristics of buildings and systems and associated costs (be it upfront investment needs or long-term risks on fuel price rise) for energy poor households is highly relevant, yet insufficiently recognised and acted upon in national policy. Unlike any other country, Scotland (UK) stands out in the acknowledgement of the specific challenges that these systems need to be fit for that relate to geographical location in its Area Based approach.

The second question addressed in the conclusions on the countries was about the **distributive impacts of policy**. In all countries (except NL), some form of energy allowance or energy bill support is provided to decrease the direct cost of energy for vulnerable households. Eligibility criteria are in some instances however excluding vulnerable groups (*e.g.*, PL, BE, BG). Next to this support type, in all countries the overall energy efficiency of residential buildings is being improved as part of various national programmes. However,

no priority is given to the buildings where energy poor households live. And in addition, improving private rental housing stock, as well as supporting energy poor private homeowners, is a challenge that remains largely unaddressed – except for a few small subnational programmes and pilots (BE and NL).

Generally speaking, when funding is inaccessible to energy poor households (due to a lack of investment options, worries about future fuel/energy prices or administrative hurdles), it remains unused or it goes to those households that do not experience these barriers. As such, funding that is not targeting energy poor households adequately, is likely to have negative distributive impacts across society in that it risks increasing the inequality between energy poor and non-energy poor households. On top of this, there is the Energy Transition that all countries have developed plans for. In the Netherlands, due to the acceleration in the phasing out household natural gas, discussions about the impact on vulnerable households that cannot afford this transition are fueled by those that benefit from societal polarisation. The risk is an undermining of the overall support for the energy and climate transition. Similar discussions are heard in other countries (which all have much higher numbers of energy poor households than the Netherlands), where the impact of switching to cleaner fuels and systems needs to be mitigated by policy in view of energy poverty.

The call for more effort to ensure that the energy and climate transition become more inclusive and socially fair has been expressed in several EPOV reports – pointing out the need for multi-sector and multi-level governance. Recent EU policy has provided an impetus for national governments to develop their NECPs that include explicit attention to energy poverty. The coming years will show the extent to which national policy is able to become more responsive to and facilitative of what is needed and what is happening ‘on the ground’ to arrive at the concerted collective effort that is essential to face the challenges ahead.

5.2 Concluding remarks

Several countries are setting up or have recently published more ambitious national policy frameworks to tackle energy poverty, paying more attention to the specific needs of energy poor households and acknowledging the important role of sub-national policy and local public and private policy actors in making these frameworks successful. In some countries (IE, UK, BE, NL) it appears that bottom-up initiative is driving the setting of a governance agenda at least to some extent.

In our upcoming activities we will further delve into these bottom-up activities when we engage with these and other new governance initiatives that are (likely to be) effective in alleviating energy poverty – through strengthening social resilience resources (be it personal, social and environmental resources). We will then go some steps further to explore the type of organisational and business models that are both viable as well as all tailored to the specific needs of the target groups.

As for the policy recommendations that will be formulated, these also take account of the results presented in this report, yet supplemented with practical experiences gained in the actual household engagements in the various countries and based on additional interactions with citizens, stakeholders and practitioners (building on the earlier interactions reported on in Breukers *et al.* (2021).

Hence, with inputs from other activities, this report provides a solid basis for working towards a more concrete, elaborate set of guidelines for governance and an agenda for policy renewal, attending to physical, multi-level institutional and social dimensions.

Bibliography

- Actieagenda wonen (2021). Samen Goed wonen. Ondertekend door 34 organisaties.
- Agterbosch, S., Wentink, J. & Paenen, S. (2020). Betaalbaarheid en haalbaarheid van de energietransitie in Utrecht. Het PON, in opdracht van de Provincie Utrecht.
- Ambrosio-Albala, P., Middlemiss, L., Owen, A., Hargreaves, T., Emmel, N., Gilbertson, J., Tod, A., Snell, C., Mullen, C., Longhurst, N., & Gillard, R. (2020). From rational to relational: How energy poor households engage with the British retail energy market. *Energy Research & Social Science*, 70, 101765. <https://doi.org/10.1016/j.erss.2020.101765>
- Bartiaux, F., Day, R., & Lahaye, W. (2021). Energy Poverty as a Restriction of Multiple Capabilities: A Systemic Approach for Belgium. *Journal of Human Development and Capabilities*, 22(2), 270–291. <https://doi.org/10.1080/19452829.2021.1887107>
- Belga (2020). Meer dan 300 woningen gerenoveerd via Noodkoopfonds. Available at: https://www.knack.be/nieuws/belgie/meer-dan-300-woningen-gerenoveerd-via-noodkoopfonds/article-belga-1653281.html?cookie_check=1629291541
- Boardman, B. (1991). *Fuel poverty: from cold homes to affordable warmth*. Belhaven Press, London.
- Boot, M. (2021) Centre Stage. Exploring the role of housing associations in addressing energy poverty at a local level in the Netherlands. Master thesis Urban and Regional Planning. University of Amsterdam.
- Bouzarovski, S., Kieczewska, A., Lewandowski, P., & Sokołowski, J. (2019). *Measuring energy poverty in Poland with the Multidimensional Energy Poverty Index*. (No. 07/2019). Institute for Structural Research, Warsaw. Bouzarovski, S., Thomson, H., & Cornelis, M. (2021). Confronting Energy Poverty in Europe: A Research and Policy Agenda. *Energies*, 14(4), 858. <https://doi.org/10.3390/en14040858>
- BPIE (2016). *Accelerating The Renovation of The Bulgarian Building Stock*. Available at: https://bpie.eu/wp-content/uploads/2016/05/Accelerating-the-renovation-of-the-Bulgarian-building-stock_EN.pdf
- Breukers, S., Agterbosch, S., & Mourik M. (2020). De energietransitie: wie kunnen, willen en mogen er meedoen?. *Beleid en Maatschappij 2020*, 47, 4.
- Breukers, S., van Duren, M., Young, J., van de Ven, D., Boekelo, M., (2021) Citizen views on policy needs for energy poverty alleviation. Deliverable 1.3 for the H2020 EnergyMeasures project.
- Davoudi, S., & Brooks, E. (2014). When Does Unequal become Unfair? Judging Claims of Environmental Injustice. *Environment and Planning A*, 46(11), 2686–2702. <https://doi.org/10.1068/a130346p>
- Day, R., Walker, G., & Simcock, N. (2016). Conceptualising energy use and energy poverty using a capabilities framework. *Energy Policy*, 93, 255-264.

- DCENR (2015). Bottom-up analysis of fuel poverty in Ireland. Department of Communications, Energy & Natural Resources, Dublin. Available at: <https://www.energypoverty.eu/publication/bottom-analysis-fuel-poverty-ireland>.
- DCENR (2016). *A Strategy to Combat Energy Poverty 2016-2019*. Department of Communications, Energy & Natural Resources, Dublin. Available at: <https://assets.gov.ie/76592/e4a51133-21ab-4479-ad18-34a868403553.pdf>
- Dunphy, N. (2020) Review of Methods of Identifying Energy Poor Households. Deliverable D1.1 for the H2020 Energy Measures project.
- Dunphy, N., Quinlivan, L., Lennon, B. (2020) Guidelines for integrating behaviour change approaches while engaging energy poor. Deliverable D1.2 for the H2020 Energy Measures project.
- EnEffect (2019). Centre for Energy Efficiency, Report: *Energy Poverty in the Light of Local Elections: What can the state and municipalities do to solve the problem of high heating bills?*. Available at: <https://www.eneffect.bg/>
- Energiewerkplaats Brabant (2021). Over Energiewerkplaats Brabant. Available at: <https://energiewerkplaatsbrabant.nl/default.aspx> (in Dutch)
- Energiewerkplaats Utrecht (2021). Over de Energiewerkplaats. Available at: <https://energiewerkplaatsutrecht.nl/over+de+energiewerkplaats+2/default.aspx> (in Dutch)
- EnergyMeasures (2021). Household Engagement Plans. Internal Working Documents. Unpublished. EnergyMeasures Project.
- EPOV (2019). Addressing Energy Poverty in the European Union: State of Play and Action. Transforming energy poverty policies in the European Union: second annual report of the European Union Energy Poverty Observatory. Publications Office of the European Union, Luxembourg.
- EPOV (2020a). Towards an inclusive energy transition in the European Union: Confronting energy poverty amidst a global crisis. Publications Office of the European Union, Luxembourg. <https://doi.org/10.2833/103649>
- EPOV (2020b). *Member States Reports on Energy Poverty 2019*. EU Energy Poverty Observatory. Publications Office of the European Union, Luxembourg. Available at: <https://data.europa.eu/doi/10.2833/81567>
- EPOV (2021a) Guidance for Policymakers. Available at <https://www.energypoverty.eu/guidance-policymakers>
- EPOV (2021b). *Alleviating Energy Poverty in Ireland: An Efficient, Sustainable Approach*. EU Energy Poverty Observatory. Publications Office of the European Union, Luxembourg Available at: <https://www.energypoverty.eu/news/alleviating-energy-poverty-ireland-efficient-sustainable-approach>

- EU (2018). Energy Efficiency Directive. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L2002&from=EN>
- EU (2019a). Third energy package. Available at: https://ec.europa.eu/energy/topics/markets-and-consumers/market-legislation/third-energy-package_en#documents
- EU (2019b). Clean Energy Package for All Europeans. Available at: https://publications.europa.eu/en/publication-detail/-/publication/b4e46873-7528-11e9-9f05-01aa75ed71a1/language-en?WT.mc_id=Searchresult&WT.ria_c=null&WT.ria_f=3608&WT.ria_ev=search
- EU (2019c). Internal Electricity Market Directive. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L0944>
- EU (2019d). The European Green Deal. Available at: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/finance-and-green-deal/just-transition-mechanism/just-transition-funding-sources_en
- EU (2019e). Citizen Energy Forums. Available at: https://ec.europa.eu/energy/topics/markets-and-consumers/energy-consumer-rights/citizens-energy-forums_en#documents
- EU (2020). A Renovation Wave for Europe - greening our buildings, creating jobs, improving lives. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1603122220757&uri=CELEX:52020DC0662>
- EU (2021). Just Transition Fund. Available at: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/finance-and-green-deal/just-transition-mechanism/just-transition-funding-sources_en
- European Commission (2015). A Framework Strategy for a Resilient Energy Union with a Forward Looking Climate Change Policy. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank, COM, 80.
- European Commission (2020). Recommendations. Commission recommendation (EU) 2020/1563 of 14 October 2020 on energy poverty. Published in the Official Journal of the European Union, Luxembourg. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020H1563&rid=2>
- Eurostat (2021a) Housing in Europe — statistics visualised. Available at: https://ec.europa.eu/eurostat/cache/digpub/housing/images/pdf/Housing-DigitalPublication-2020_en.pdf?lang=en
- Eurostat (2021b). Population unable to keep home adequately warm by poverty status. Available at: https://ec.europa.eu/eurostat/databrowser/view/sdg_07_60/default/bar?lang=en
- FEBEG (2021). 'Corona-charter': Energieleveranciers in actie om hun klanten te ondersteunen tijdens de coronacrisis. Available at: <https://www.febeg.be/nieuwsbericht/corona-charter-energieleveranciers-actie-om-hun-klanten-te-ondersteunen-tijdens-de>

- Feenstra, M., Middlemiss, L., Hesselman, M., Straver, K., & Tirado Herrero, S. (2021). Humanising the Energy Transition: Towards a National Policy on Energy Poverty in the Netherlands. *Frontiers in Sustainable Cities*, 3, 645624. <https://doi.org/10.3389/frsc.2021.645624>
- Frankowski, J. & Sokołowski, J. (2021). *How to improve the quality of life of the energy poor?*. (No. 01/2020). Institute for Structural Research, Warsaw.
- Georgiev, Z., Gaydarova, E. & Nikolova, N., (2021) Bulgaria. Baseline Assessment Report. POWERPOOR 'Empowering Energy Poor Citizens through Joint Energy Initiatives'. SOFENA, Sofia Energy Agency.
- Government of Bulgaria (2021a). *Integrated Energy And Climate Plan Of The Republic Of Bulgaria 2021–2030*. Available at: https://ec.europa.eu/energy/sites/default/files/documents/bg_final_necp_main_en.pdf
- Government of Bulgaria (2021b). *Bulgarian Long-term Renovation Strategy 2020*. Available at: https://ec.europa.eu/energy/sites/default/files/documents/bg_2020_ltrs.pdf
- Government of Flanders (2021a). Ondersteuning van noodkoopwoningen. Available at: <https://www.energiesparen.be/noodkoopwoningen>
- Government of Flanders (2021b). Huur-en-isolatiepremie. Available at: <https://www.vlaanderen.be/huur-en-isolatiepremie>
- Government of North Macedonia (2011). *Energy Law*. Official Gazette of the Republic of Macedonia (16/2011 and 136/2011). Available at: <http://balkan-energy.com/wp-content/uploads/2016/05/Energy-Law-Official-Gazette-No.-16-2011-and-136-2011-EN1.pdf>
- Government of North Macedonia (2018a). *Energy Development Strategy*. Available at: <https://economy.gov.mk/Upload/Documents/Zakon%20za%20energetika%20MK.pdf>
- Government of North Macedonia (2018b). *Decree For Promulgation Of The Energy Law*. (08-3424/1). Available at: <https://erc.org.mk/odluki/2ENERGY%20LAW%20MACEDONIA%202018%20.pdf>
- Government of North Macedonia (2019). *Law on Social Protection*. Available at: http://www.mtsp.gov.mk/content/pdf/zakoni/2019/28.5_zakon_SZ.pdf (in Macedonian)
- Government of North Macedonia (2020a). *Program for protection of vulnerable energy consumers*. Official Gazette of the Republic of North Macedonia (14/2021). Available at: <https://www.slvesnik.com.mk/Issues/a2bed5b42c36460fbb6b1a8dc4a40dbe.pdf> (in Macedonian)
- Government of North Macedonia (2020b). *Law on Energy Efficiency*. Available at: <https://economy.gov.mk/Upload/Documents/Zakon%20za%20energetska%20efikasnost.pdf>
- Government of North Macedonia (2021). Programme for promotion of renewable energy sources and stimulation of energy efficiency in the households for 2021. Available at: <https://dejure.mk/zakon/programa-za-promocija-na-obnovlivi-izvori-na-energija-i-pottiknuvanje-na-energetska-efikasnost-vo-domakjinstvata-za-2021-godina> (in Macedonian)

- Grossmann, K., Jigla, G., Dubois, U., Sinea, A., Martín-Consuegra, F., Dereniowska, M., Franke, R., Guyet, R., Horta, A., Katman, F., Papamikrouli, L., Castaño-Rosa, R., Sandmann, L., Stojilovska, A., & Varo, A. (2021). The critical role of trust in experiencing and coping with energy poverty: Evidence from across Europe. *Energy Research & Social Science*, 76, 102064.
- Haar, M. van der, Beyen, C., Blanken, M., Dagevos, J., Mulder, R., Paenen, S., & Vinckx, K. (2018). Monitor Sociale Veerkracht. Tilburg: Het PON/Telos
- Heylen, K. & Vanderstraeten, L. (2019) Wonen in Vlaanderen anno 2018. Leuven: Steunpunt Wonen
- Home Energy Scotland (2020^a). Warmer Homes Scotland: in detail. Available at: <https://www.homeenergyscotland.org/find-funding-grants-and-loans/warmer-homes-scotland/>
- Home Energy Scotland (2020^b). Home Energy Scotland Loan: overview. Available at: <https://www.homeenergyscotland.org/find-funding-grants-and-loans/interest-free-loans/overview/>
- Housing Services Comhairle nan Eilean Siar (2017). *Outer Hebrides Local Housing Strategy 2017-2022*. Available at: <https://www.cne-siar.gov.uk/media/10321/outer-hebrides-local-housing-strategy-2017-2022.pdf>
- HPP (2015). Hebridean Housing Partnership Investment Programme Ward by Ward. Available at: <https://www.hebrideanhousing.co.uk/wp-content/uploads/2015/04/Ward-by-Ward-Investment-booklet.pdf>
- <https://www.febeg.be/nieuwsbericht/corona-charter-energieleveranciers-actie-om-hun-klanten-te-ondersteunen-tijdens-de>
- Karpinska, L., & Śmiech, S. (2020). Conceptualising housing costs: The hidden face of energy poverty in Poland. *Energy Policy*, 147, 1118-19.
- Kerr, N., Gillard, R. & Middlemiss, L. (2019). Politics, problematisation, and policy: A comparative analysis of energy poverty in England, Ireland and France. *Energy and Buildings*, 194, 191–200.
- Koning Boudewijnstichting. (2020) Barometers energie- en waterarmoede: Analyse en interpretatie van de resultaten 2009 -2018. Onderzoeksrapport. Available at: <https://www.kbs-frb.be/nl/Activities/Publications/2020/20200323NT>
- Kyprianou, I., Serghides, D. K., Varo, A., Gouveia, J. P., Kopeva, D., & Murauskaite, L. (2019). Energy poverty policies and measures in 5 EU countries: A comparative study. *Energy and Buildings*, 196, 46–60. DOI: 10.1016/j.enbuild.2019.05.003
- Middlemiss, L., & Gillard, R. (2015). Fuel poverty from the bottom-up: Characterising household energy vulnerability through the lived experience of the fuel poor. *Energy Research & Social Science*, 6, 146-154.
- Middlemiss, L., Mulder, P., Hesselman, M., Feenstra, M., Herrero, S. T., & Straver, K. (2020). Energy Poverty and the Energy Transition towards improved energy poverty monitoring, measuring and policy action. TNO.

- MinEZK (2019). Integrated National Energy and Climate Plan 2021-2030, The Netherlands. Ministry of Economic Affairs and Climate Policy. The Hague, The Netherlands.
- O'Brien, M. (2020). *Mind the Fuel Poverty Gap*. Citizens Advice Scotland. ISSN 2398-6204. Available at: https://www.cas.org.uk/system/files/publications/mind_the_fuel_poverty_gap_06.08.pdf
- PAW (2021). Energiebespaarhypotheek voor bewoners in wijkaanpakken. Available at: <https://www.aardgasvrijewijken.nl/themas/kostenenfinanciering/energiebespaarhypotheek+voor+bewoners+in+wijkaanpa/default.aspx> (in Dutch)
- Polish Government. (2020). *The National Energy and Climate Plan for 2021-2030*. Available at: https://ec.europa.eu/energy/sites/default/files/documents/pl_final_necp_part_1_3_en.pdf
- Putnam, R.D. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon and Schuster.
- RVO (2021). Regeling Reductie Energiegebruik. Available at: <https://www.rvo.nl/subsidie-en-financieringswijzer/rre> (in Dutch)
- Samenlevingsopbouw (2021). Goed Plan. Available at: <https://goedplan.be/>
- Schlosberg, D. (2004). Reconceiving Environmental Justice: Global Movements and Political Theories. *Environmental Politics*, 13(3), 517–540.
- Schlosberg, D. (2013). Theorising environmental justice: The expanding sphere of a discourse. *Environmental Politics*, 22(1), 37–55.
- Scottish Government (2018a). *Fuel Poverty Strategy for Scotland* (Draft). Available at: <https://www.gov.scot/publications/draft-fuel-poverty-scotland-2018/>
- Scottish Government (2018b). *Fuel poverty homecare pilot: case study*. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/factsheet/2018/06/fuel-poverty-homecare-pilot-case-study/documents/hes-homecare-case-study-june-2018-pdf/hes-homecare-case-study-june-2018-pdf/govscot%3Adocument/HES%2BHomecare%2B-%2BCase%2BStudy%2B-%2BJune%2B2018.pdf?forceDownload=true>
- Scottish Government (2019^a). *Fuel Poverty (Target, Definition and Strategy) Act*. Available at: <https://www.legislation.gov.uk/asp/2019/10?view=extent>
- Scottish Government (2019^b). *Home Energy Efficiency Programmes for Scotland Delivery Report 2017/18*. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/corporate-report/2019/05/home-energy-efficiency-programmes-scotland-delivery-report-2017-18/documents/home-energy-efficiency-programmes-scotland-delivery-report-2017-18/home-energy-efficiency-programmes-scotland-delivery-report-2017-18/govscot%3Adocument/home-energy-efficiency-programmes-scotland-delivery-report-2017-18.pdf?forceDownload=true>

- Scottish Government (2020). *Scottish house condition survey: 2019 key findings*. Directorate for Housing and Social Justice, Scotland. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/statistics/2020/12/scottish-house-condition-survey-2019-key-findings/documents/scottish-house-condition-survey-2019-key-findings/scottish-house-condition-survey-2019-key-findings/govscot%3Adocument/scottish-house-condition-survey-2019-key-findings.pdf?forceDownload=true>
- Scottish Government (2021). Priorities of Government statement – 26 May 2021. Available at: <https://www.gov.scot/publications/priorities-government-statement-26-2021/>
- Sinea, A. C. & Vornicu-Chira, A. (2020). Energy Poverty In Central, Eastern And Southeast Europe. Center for the Study of Democracy (CSD), Cluj-Napoca, Romania.
- SMARTER (2019). SMARTER Finance for Vulnerable Families: A model for financing of deep energy retrofitting of multifamily buildings adapted to the needs of the energy poor household. Infosheet. SMARTER H2020 Project
- Sokol, K. (2017, Jan 20) Energiepremies stromen niet door naar laagste inkomens. VRT NWS. Available at: https://www.vrt.be/vrtnws/nl/2017/01/20/energiepremies_stromennietdoornaarlaagsteinkomens-1-2869883/
- Sokołowski, J., Frankowski, J., & Lewandowski, P. (2020). *Energy poverty, housing conditions, and self-assessed health: evidence from Poland*. (No. 10/2020). Institute for Structural Research, Warsaw. Available at: https://ibs.org.pl/app/uploads/2020/12/Energy_poverty_housing_and_health_IBS_WP_10_2020.pdf
- State Statistical Office of the Republic of North Macedonia (2020). Available at: https://www.stat.gov.mk/PrikaziSooopstenie_en.aspx?rbtxt=115
- Stojilovska, A., & Zuber, S. (2013). Energy poverty in Macedonia. Konrad Adenauer Stiftung/Analitika.
- Straver, K., Mulder, P., Middlemiss, L., Hesselman, M., Feenstra, M. & Tirado Herrero, S. (2020) *Energiearmoede en de energietransitie. Energiearmoede beter meten, monitoren en bestrijden*. White paper, TNO Innovation for Life. (in Dutch)
- Straver, K., van Grieken, A., Mulder, P., Geitenbeek, L. & Geertjes, K. (2021) Werken aan een inclusieve energietransitie. Energiearmoede in kaart voor de provincie Zuid-Holland. TNO in opdracht van de Provincie Zuid-Holland. (in Dutch)
- SVN (2018). Zo werkt de Verzilverlening. Available at: <https://www.svn.nl/zo-werkt-de-verzilverlening> (in Dutch)
- Thomson, H., Snell, C. & Bouzarovski, S. (2017). Health, Well-Being and Energy Poverty in Europe: A Comparative Study of 32 European Countries. *International Journal of Environmental Research and Public Health*, 14(6), 584.

- UK Parliament (2021). *Fuel Poverty*. (8730). House of Commons Library, London. Available at: <https://researchbriefings.files.parliament.uk/documents/CBP-8730/CBP-8730.pdf>
- Walker, G., & Day, R. (2012). Fuel poverty as injustice: Integrating distribution, recognition and procedure in the struggle for affordable warmth. *Energy Policy*, 49, 69–75.
- Willand, N., Middha, B., & Walker, G. (2021). Using the capability approach to evaluate energy vulnerability policies and initiatives in Victoria, Australia. *Local Environment*, 1–19.
- Wonen-Vlaanderen (2021). Wonen-Vlaanderen. Available at: <https://www.wonenvlaanderen.be>
- WoonWijs Breda (2021). Woningabonnement. Available at: <https://woonwijsbreda.nl/financiering-en-subsidies/woningabonnement/> (in Dutch)
- World Bank Group (2020). *Poverty & Equity Brief North Macedonia*. Available at: https://databank.worldbank.org/data/download/poverty/33EF03BB-9722-4AE2-ABC7-AA2972D68AFE/Global_POVEQ_MKD.pdf

Appendix 1: Overview of stakeholders engaged

| Reference in text* | Description |
|--------------------|---|
| BE_SH1 | Vito – Energy research organisation with a predominantly technical orientation, but also involved in a project that addressed energy poverty |
| BE_SH2 | Samenlevingsopbouw (SO): SO is a community development non-profit that works to address poverty & energy poverty for over 20 years. |
| BE_SH3 | University of Antwerp: interviewee is an academic staff member at USAB (University Foundation for Poverty Reduction) |
| BE_SH4 | Energie ID: Energie ID offers a platform on which meter readings and consumption data for energy, water, mobility and waste can be kept. |
| BE_SH5 | HERWIN: HERW! federation of social entrepreneurs, working on circular economy themes. But they also organise the Energiesnoeiers, that implement energy-saving measures |
| BG_SH1 | Centre for the study of Democracy (CID): sociological research work on (energy) poverty |
| BG_SH2 | Habitat for Humanity: an NGO providing loans and advice to vulnerable households |
| BG_SH3 | Active Consumers: a consumer organisation |
| IE_SH1 | NCE Energy Hub – social enterprise promoting and supporting domestic energy saving and efficiency measures |
| IE_SH2 | SE Systems – Retrofitting and refurbishing company |
| IE_SH3 | Energy supplying company |
| IE_SH4 | Threshold – national housing charity supporting households that experience problems of poverty and exclusion. |
| IE_SH5 | MABS – Publicly funded agency for budgeting and financial advice |
| IE_SH6 | Sustainable Energy Authority of Ireland – Governmental agency |
| IE_SH7 | Society of St. Vincent De Paul – Charity organisation |
| IE_SH8 | Dublin City Council – City Council |
| PL_SH1 | City's department for environmental protection and energy |
| PL_SH2 | Energy utility company |
| PL_SH3 | Municipal social services |
| NL_SH1 | Design-thinking consultancy involved in engaging energy poor households |
| NL_SH2 | Municipality Eindhoven, policy advisor: social domain, poverty and debts services expert |
| NL_SH3 | Energiebox: provider of energy coaching trajectories |
| NL_SH4 | Woonbedrijf: social housing association |
| NL_SH5 | Municipality Eindhoven: budget coaches and budget management |
| NL_SH6 | Woonbond: interest organisation of individual tenants, tenants' organisations or tenant associations |
| NL_SH7 | WOON!: advisor/project leader Energy coaches |

| | |
|--------|--|
| NL_SH8 | Kiezers & Visser: social domain consultant, setting up and implementing energy coaching |
| MK_SH1 | Municipality of Karposh (part of Skopje) Lupco Dimov |
| MK_SH2 | Municipality of Gostivar Dashmir Osmani |
| MK_SH3 | Secondary Vocational School of Electrotechnics of the City of Skopje Eftim Peovski |
| MK_SH4 | Timelproekt Dooel – Skopje (Engineering firm) Dragan Blazev |
| MK_SH5 | Habitat for Humanity Macedonia Liljana Alceva |
| GB_SH1 | Comhairle nan Eilean Siar - The Local Government Council which serves the Outer Hebrides and which oversees the implementation of Scottish Government policy across a wide number of areas, one of which is aspects of Energy. |
| GB_SH2 | The Energy Advisory Service (TEAS SCIO) Scottish Charitable Incorporated Organisation - The main organisation in the Outer Hebrides who deal with people in energy poverty and contribute to help shape local and national policy to tackle the issue and its effects. |
| GB_SH3 | Home Energy Scotland - A network of local advice centres covering all of Scotland. |

*BE: Belgium, BG: Bulgaria, IE: Ireland, PL: Poland, NL: Netherlands, MK: North Macedonia, GB: United Kingdom, Scotland