



Policy Paper

Alleviating Energy Poverty in Romania and beyond

Strategy proposals for the local and national level

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Strategy proposals for the local and national level

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List of Abbreviations

CEE	Central and Eastern Europe
CEP	Clean energy package
EAP	Energy advice points
EC	European Commission
EE	Energy efficiency
EEEF	European energy efficiency fund
ELENA	European local energy assistance
EPOV	Energy poverty observatory
EU	European Union
GHG	Greenhouse gas
HEA	Home energy advisors
kW	Kilowatt
kWh	Kilowatt hour
LTRS	Long term renovation strategy
Mtoe	Million tons oil equivalent
MS	Member state
NGO	Non-governmental organisation
NECP	National energy and climate plans
NZEB	Net-zero emission buildings
TEP	Third energy package

Introduction

Protecting vulnerable consumers and alleviating energy poverty has become an important aspect of the just energy transition in the European Union. Energy poverty represents a problem throughout all of Europe, with a multitude of factors contributing to the issue. The more recent policy approaches at the EU level have focussed on providing vulnerable consumers with affordable, secure, inclusive and sustainable energy. However, the co-benefits these policies provide for achieving social and climate goals did not yet receive much attention and should become a strong argument for implementing long term sustainable energy poverty alleviation policies at all levels of governance.

Energy poverty affects around 34 million EU households, with some countries significantly more affected than others (BPIE, 2014; European Commission, 2020; Stefan Bouzarovski and Harriet Thomson, 2019). For instance, enduring energy poverty results in poor health conditions – both physical and mental – as well as lower productivity and can lead to social exclusion (Sunderland *et al.*, 2020; Bouzarovski & Thomson, 2019). Health concerns and social harms have played a major role in shaping policies around energy poverty, but the place that energy poverty holds in the wider climate debate has not been as pronounced. The synergies that long-term energy poverty alleviation strategies can provide for climate change mitigation, as well as the wider economic benefits such as job creation, as explored by Ürge-Vorsatz and Tirado Herrero (2012), have not been adequately taken into account by policy makers. As the risk of vulnerable consumers being left behind in the energy transition becomes a more salient political issues, the aforementioned synergies should be a key consideration for policymakers as they aim to achieve both, climate and the social goals.

This paper looks at how energy poverty policies at the EU level have evolved, how the approach has changed over time and the role that energy poverty plays in the Clean Energy for all European Package. Although energy poverty is present in all EU member states, Eastern European countries with a communist past are disproportionately more affected (Bouzarovski, Petrova and Sarlamanov, 2012; Bouzarovski and Tirado Herrero, 2017a, 2017b; Lenz and Grgurev, 2017; Mazurkiewicz and Lis, 2018; Thomson, Snell and Bouzarovski, 2017). This paper thus focuses on these countries, especially Romania, as they not only have higher rates of energy poverty, but also policy frameworks to tackle energy poverty that are still in their nascent stages. Furthermore, the paper looks at some best practice examples from the areas of social policy, energy efficiency programmes, and information and awareness policies. Lastly, the interlinkage between energy poverty policies and climate change mitigation is discussed, particularly how this interlinkage presents an opportunity in the Eastern European context to reach climate goals and improve the standard of living of vulnerable consumers.

The paper is based on desk research, analysis of legal texts, and a series of interviews with experts from academia, industry, as well as policymakers from around the EU. It is written as part of a research project funded by the European Climate Initiative of the German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety. The paper aims to strengthen the case for implementing policies that simultaneously address energy poverty and climate change mitigation in the Eastern European context, particularly Romania. The findings will inform policy decisions at the local and regional levels, in particular for the Eastern European Context and against the backdrop of the evolving Just Energy Transition.

1 Energy Poverty at a glance

Energy poverty is recognized as a problem that affects around 34 million citizens' health and their ability to meet their energy needs (European Commission, 2020; Stefan Bouzarovski and Harriet Thomson, 2019). It increasingly being addressed explicitly in policies at the EU, national, as well as the local level. Energy poverty has been a policy issue at the EU level for over a decade, albeit without a universal definition. The concept was truly mainstreamed in 2009 with the ratification of the third Energy Package (TEP), which explicitly outlined the obligations of member states to protect vulnerable consumers in the energy market and to draft definitions for the terms energy poverty and vulnerable consumer. Most recently, energy poverty was formalised further in the 2018 'Clean Energy for all Europeans' package, which requires member states to evaluate the significance of and, if necessary, address energy poverty within their national contexts (*Directive (EU) 2019/944 on common rules for the internal market for electricity, Article 29*).

The 'Clean Energy for all Europeans' package aims to comprehensively – amongst other things – address energy poverty through revisions to four major energy directives and regulations which target two of the root drivers of energy poverty: High energy prices and low energy efficiency in residential buildings, the last one being low incomes. Although energy poverty is strongly correlated with income poverty it was an important step in drafting effective policies to decouple these two as being separate issues with separate causes and remedies. A more complete analysis should include energy efficiency in dwellings, energy prices and access to energy. This distinction made it apparent that it is not enough to address energy poverty through social policies such as income support, but rather a holistic approach that combines energy, housing, social and health policy is required to effectively tackle the issue. To reach this stage of awareness and engagement at a European level was an incremental process over many years that was pushed forwards due to certain member states – namely the UK, Ireland, and France – acting as frontrunners in researching and developing policies to address the phenomenon (Kyprianou *et al.*, 2019; Bouzarovski & Thomson, 2019).

The bulk of research on energy poverty, dating back to the early 1990s, stems from the UK. The UK was the first country to conduct major research on not only drivers of energy poverty, but also its outcomes and effects on citizens, which helped establish it as an important issue on the policy agenda. The UK was quick to define the issue – with an official definition published in the *Warm Homes and Energy Conservation Act* of 2000 – and develop indicators to measure its prevalence (DECC, 2016). The EU was slower in its implementation of the concept into the legal framework. In 2003, the directive 2003/54/EC mentioned, that member states, “should take the necessary measures to protect vulnerable customers in the context of the internal electricity market” (Recital 24). The Directive (2003/54/EC) was repealed and replaced as part of the *Third Energy Package* in 2009. By then, energy poverty had been subject to a lot more attention and research. It was the first time that the term appeared in an EU legislative document. *Directive 2009/72/EC concerning common rules for the internal market in electricity* – part of the Third Energy Package – recognised energy poverty as a growing problem within the Union. It reiterated the need for Member States to protect vulnerable consumers and included concrete measures such as the prohibition of disconnections for vulnerable customers, the need for transparent energy contracts, and ensuring that consumers can easily switch supplier. Furthermore, Article 3 paragraphs 7 and 8 mention the obligation of states to address energy poverty wherever it is identified, be it through social assistance – to ensure supply and access – or through “support for energy efficiency improvements” to reduce energy costs.

The latest development regarding energy poverty its role within the *Clean Energy for all Europeans Package*. The directives and regulations that make up the package oblige member states to acknowledge and assess the energy poverty situation within their states. States must include the outcome of the assessment in their national energy and climate plans (NECP) and a timeframe in which they aim to fight the problem (*Regulation (EU) 2018/1999*). Under the principle of subsidiarity each member state will choose their own approach, however, the EC is supporting their efforts in various ways, one of the most important being the establishment and funding of the EU Energy Poverty Observatory (EPOV). The EPOV tracks the development of energy poverty around Europe and is a valuable tool for policymakers at all levels to stay informed about best practice and find policy recommendations.

1.1 Particularities of Energy Poverty in the Central and Eastern European Context

Energy poverty poses a particularly large problem in the Central and Eastern European member states. In 2018, households in Bulgaria, Croatia, Hungary, Romania, Serbia, Slovenia, and Slovakia were more likely to have arrears on their utility bills than the EU average (Eurostat, 2018). Bulgarian, Romanian, Croatian and Serbian households were also more likely than the EU average to report that they could not heat their home adequately (Eurostat, 2019). These countries share a number of characteristics such as inefficient building stocks, lower average incomes, and a similar state of the electricity and heating markets. Many of these common issues can be attributed back to their shared past of centrally planned economies where buildings were built with low thermal insulation and consumers historically faced artificially low energy prices (Anca C. Sinea and Andreea Vornicu-Chira, 2020; Bouzarovski *et al.*, 2016; Bouzarovski, Petrova and Sarlamanov, 2012; Jiglău *et al.*, 2021; Muresan and Attia, 2017).

The former socialist states of Central and Eastern Europe faced particular hardships with energy poverty due to the high rates of general poverty and inequality that the countries battled during the transitional periods beginning in 1990. Many of the states were already dealing with surges in unemployment and declining incomes during the late 1980s, both of which were aggravated after 1990 (Bouzarovski, 2007a). After the beginning of the transition period, the industrial sector suffered greatly and many large enterprises had to close as state subsidies were cut, a driving factor in the high rates of unemployment and social inequality in the region (Bouzarovski, 2007a). More broadly, a whole range of social assistances were defunded or cut altogether, such as the removal of consumer subsidies, price controls on a range of products and services, and the removal of state support for housing, energy and transportation services (Bouzarovski, 2007a, 2007b).

1.1.1 The Building Stock and Ownership Structures

The socialist era building stock in many countries still suffers from poor levels of thermal insulation due to the lack of a concerted effort by the state or the private sector to invest in maintenance and energy efficiency upgrades (Benkő *et al.*, 2015; Bouzarovski, 2014; BPIE, 2014; Jiglău *et al.*, 2021). Bouzarovski (2007b) describes energy poverty in post-socialist states – but also more broadly – as a vicious circle where high heating costs, coupled with low thermal efficiency deprives households of the financial means to make an investment in energy efficiency to break this cycle. This vicious circle affects certain social strata more than others;

particularly vulnerable groups such as large families – especially with young children – the unemployed, pensioners, and low-income earners. They face a higher risk because they may need higher household temperatures, as is the case for older people and young children, or they have higher expenditures by virtue of being more people. This is compounded by the fact that unemployed people, pensioners, and families raising young children, on top of having less disposable income, spend more time at home and thus use more energy (Bouzarovski, 2007a).

Looking at Romania in particular, 90% of the residential floor area was built before 1989, with 1961-1980 being the most intensive construction period (BPIE, 2014). At this time, the economic limitations required houses to be built cheaply and quickly. This was coupled with highly subsidised, very low energy costs. The result was very little incentive to invest in good thermal insulation and other energy efficiency measures during construction (Ürge-Vorsatz and Tirado Herrero, 2012). The low energy efficiency leads to households having to compromise on their thermal comfort levels to save money, such as partial or temporary room heating (Sinea and Vornicu-Chira, 2020). There are programmes in place for energy efficiency renovations in multifamily buildings in urban areas. These however, do not cover single family houses in rural and suburban areas (Jiglău *et al.*, 2021).

CEE is also characterised by very high rates of home ownership when compared with the rest of Europe. Romania registers the highest home-ownership rates in all of Europe at 96.1% (Muresan and Attia, 2017). After 1989 most post-communist governments encouraged their citizens to buy the homes they lived in (Hegedüs *et al.*, 2017). Renovation programs for large apartment blocks have thus proved difficult to implement due to the fragmented ownership structures of the buildings and the diversity of the owners. Renovation concepts needed to appeal to across various economic and social strata living in the same building. A majority (in some cases unanimous) vote for such an intervention is need which is difficult to achieve. Lower income households may not have the capital to contribute and some households simply may not see it as a priority. Beyond this motivation to invest in renovation has been low due to an observed lack of “sense of ownership” as well as high degree of mutual distrust preventing collective action (Anca C. Sinea and Andreea Vornicu-Chira, 2020; Jiglău *et al.*, 2021; József Hegedüs, Vera Horváth and Eszter Somogyi, 2017).

1.1.2 Energy Sources

The market liberalisation following 1989 caused an increase in energy prices for gas as well as electricity (Lenz and Grgurev, 2017). The price of energy consistently increased more than inflation at a time when incomes were stagnating or declining (Bouzarovski, Petrova & Tirado-Herrero, 2014). This particularly affected the heating sector, as the price for “modern” heating sources – such as gas and district heating – increased, large parts of the population switched back to, or did not move away from, biomass as a source of residential heating (Bouzarovski, Petrova and Sarlamanov, 2012). In 2011, 48% of households in Romania used biomass, often burned in inefficient stoves, as their heating source (BPIE, 2014). In rural areas the number of household using biomass is around 80%, while in urban areas it is only 10% (Jiglău *et al.*, 2021). Homes using biomass as their heating source were found to have a higher final energy consumption than those connected to the gas or district-heating grid (BUILD UP Skills, 2012). After 1989 disconnecting from the district heating grid was encouraged and individual gas heating systems became the preference (Dimulescu, 2014). While the number of households connecting to the gas grid is increasing, it is a slow process. A main barrier to access is the high upfront cost of a gas connection, (between 630 and 1000 euros) which results in households continuing to use inefficient and more polluting heating solution such as biomass

(Sinea *et al.*, 2018). Romanian district heating infrastructure has decreased by 50% since 2000 (Bertelsen and Vad Mathiesen, 2020). This left the district heating grid with little money for maintenance, high costs for the remaining customers, and low efficiency (Dimulescu, 2014; Poputoaia and Bouzarovski, 2010). This was reflected in the fact that wood represented the main heating fuel from the period 1995-2011 (Benkő *et al.*, 2015), facilitated by cheap, and often informal, access to wood due to Romania's vast forests which cover 26% of its surface area (FAO, 2015; Jiglău *et al.*, 2021).

1.1.3 Urban-Rural Divide

CEE still has a higher rate of rural populations than much of western Europe with Slovakia and Romania featuring the highest rates of rural populations (World Bank, 2019). Rural populations may be particularly vulnerable to energy poverty for a number of reasons; average incomes are lower than in urban settings (Eurostat, 2020), more people live in detached housing which has higher energy needs for example for heating due to being larger and having more exposed walls. There are also less renovation programmes in rural areas as the public authorities tend to have less money. National funds for renovation programmes also flow to cities as renovating multi-family apartment blocks benefits more citizens per Euro spent and urban areas tend to be the focus of national development plans (Sinea and Vornicu-Chira, 2020). Lastly, there is much less available and precise data for rural households which can be used to effectively target policies.

Rural households also face worse access to energy than their urban counterparts. They rely disproportionately on wood for heating which at peak time of demand can be very expensive. This also means they benefit less from heating cost support schemes which many urban households reliant on gas or district heating can benefit from. These support schemes only cover half the costs of wood, significantly less than what is covered for other heating fuels (Clodnitchi and Busu, 2017), the wood market is often not strongly regulated and in part informal making it difficult to claim government support. This results in rural households spending a disproportionate amount of their income on heating fuels, particularly in the winter when the price of wood increases considerably (Sinea & Vornicu-Chira, 2020).

1.1.4 Informal Settlements

A particular issue exacerbating energy poverty in CEE is informal housing communities, generally populated by marginalised communities such as the Roma. In Romania alone there are around 60,000 Roma families living in informal settlements (PACT, 2018). One of the main issues that communities living in informal settlements face is their lack of access to utilities. While over 74% of informal communities have access to the public electricity grid, only 10% have a connection to the gas grid (PACT, 2018). Often these electricity connections are being syphoned off the grid and lead to noticeable losses for electricity providers. By some estimates there are around 420,000 households informally connected to the energy grid (Sinea *et al.*, 2018). The absence of gas connections results in a disproportionate use of solid fuels to heat the home. Due to low-incomes, the fuels used are often of very low quality, ranging from moist firewood to trash and plastics, which can have detrimental environmental and health effects through indoor air pollution. Households living in informal communities lack the property rights for their dwelling, thus they cannot receive a utility contract connecting them to the grid. The different levels of government have only partially or indirectly addressed the issue. Often the informal settlements are broken up and the inhabitants are relocated to a formalised settlement, however these new settlements often do not improve their living standards as the

“social housing” dwelling provided remains of very low quality and their access to utilities does not always improve (Berescu, 2011). Where Roma communities stay in their informal settlements, with materials becoming cheaper and incomes rising over the last decade they have only become more “settled” by rebuilding and renovating their homes, making it even more difficult to tackle this issue (PACT, 2018).

The combination of these factors make CEE an interesting case study to look at energy poverty. While many of these issues were either not addressed, or addressed only partially, policy-makers today are taking a more holistic approach analysing the interplay and interconnectedness of these seemingly separate issues when making policies to tackle energy poverty. The later chapters will look policies that have been implemented that take into account these contextual factors, as well as engagement by the private sector and civil society organisations.

1.2 Energy Poverty within the Just Transition and Clean Energy for all Europeans Package

Energy poverty received a new wave of attention with the publishing of the 2018 *Clean energy for all Europeans package* (introduced in 1) and because of its interlinkage with the Just Transition debate. This debate became even more pertinent due to the outbreak of the COVID-19 pandemic, which – through confining people to their homes – highlighted the fundamental importance having their energy needs met as well as the stresses of not being able to afford these. The majority of EU member states took some form of emergency action to alleviate the symptoms of energy poverty, which are felt more acutely when vulnerable households are spend more time at home (Bouzarovski, 2007a). The COVID crisis laid bare what had already been recognised at the EU level in the Clean Energy Package; that any changes to the electricity system and even wider consumer shifts will affect vulnerable consumers the most and must thus be weighed out and implemented carefully.

1.2.1 Energy Poverty in the Just Transition

A number of concerns relating to energy poverty have been raised as part of the Just Transition debate taking place at EU and national levels. Firstly, the fact that energy poor households tend to live in lower quality dwellings and earn lower wages, means that even though the marginal benefit of an energy efficiency renovation may be highest for them, they simply do not have the capital to invest or even the collateral to take on a loan. Concerns here are that while national targets for energy efficiency and energy consumption reduction may be met, they will be met through middle- and upper-class households who do not face the same investment barriers and are able to benefit from such measures. Spending a high proportion of your income on energy bills also increases the difficulty of accumulating the capital needed for an eventual investment.

The second concern is how the decarbonisation of the energy system will affect vulnerable consumers. To finance renewable energy projects and other decarbonisation measures, levies and taxes are often imposed on energy prices. On average, in the EU, 63% of the price make-up of electricity came from network fees and costs of clean energy programmes (Sunderland *et al.*, 2020). Further increases to levies and taxes would disproportionately affect low income households who already have the highest expenditure rate for energy at 9.8% (DG Ener, 2019). Low-income households also have the lowest absolute energy consumption, meaning

they use just enough to meet their basic needs and are thus less able to respond to price signals (Sunderland *et al.*, 2020). Another risk that the decarbonisation of energy markets presents for vulnerable consumers is the shift away from gas as a heating fuel. Middle- and high-income consumers may be the first ones adopting new low-carbon or carbon-neutral heating technologies such as solar-thermal, heat-pumps, or biofuels. This leaves low income consumers – who may not be able to switch due to switching costs or lack of access to such technologies – left holding the bill for the fixed network costs which are being shared by fewer and fewer people and are thus increasing (Sunderland *et al.*, 2020). The same risk arises when new energy supply concepts such as renewable and citizen energy communities become more popular. Low-income households may have less access to these communities or may be excluded due to financial entry barriers. This again sees middle and high-income consumers making a switch while low-income consumers are left behind using old technologies and facing increasing network fees (Caramizaru and Uihlein, 2020).

1.2.2 The Clean Energy Package

Throughout the legislative acts of the *Clean Energy for all Europeans* (CEP) package the EU took steps to address the aforementioned concerns. The legislative acts of the CEP package consistently demand that member states shall take into account vulnerable consumers and those affected by energy poverty when implementing measures as part of their transition to a green-economy. The first concern discussed above is addressed in Article 7(11) of the amended Energy Efficiency Directive (2018) which states that:

“Member States shall take into account the need to alleviate energy poverty in accordance with criteria established by them, taking into consideration their available practices in the field, by requiring, to the extent appropriate, a share of energy efficiency measures under their national energy efficiency obligation schemes, alternative policy measures, or programmes or measures financed under an Energy Efficiency National Fund, to be implemented as a priority among vulnerable households, including those affected by energy poverty and, where appropriate, in social housing.”

While the EU seems concerned with tackling this issue the writing of this is an issue where the EU operated heavily according to the principle of subsidiarity, offering almost full discretion to the member states regarding how to approach this issue. The article makes it clear that each member state shall come up with their own definition and decide on their own indicators for measuring energy poverty. This allows for flexibility and the ability to take national contextual factors into consideration, however, it also means that a pan-EU comparison is more difficult as different indicators and thresholds will be applied, which makes the exchange of best practice more difficult.

The question about what measures should be implemented is also left open to the member states, while the article mentions energy efficiency measures, it also does not exclude alternative measures that can be financed through an Energy Efficiency National Fund. There is no specific goal set in the article and the “appropriate extent” at which member state should implement measures will depend very heavily on the definition and indicators used by the member states. In accordance with *Regulation (EU) 2018/1999* the member states have reported their implemented measures in their national energy and climate progress reports (NECPs) which were mostly published by the end of 2019. There are still wide discrepancies across the EU when it comes to addressing energy poverty which will be looked at below.

The *internal electricity market directive (EU) 2019/944* sets out the obligations that member states have towards vulnerable and energy poor consumers. Article 5 states that “member

states shall ensure the protection of energy poor and vulnerable household customers...by social policy or by other means than public interventions in the price setting for the supply of electricity.” While this shows that the focus is still on energy poverty as a social issue and less of an energy issue, it also leaves the door open for the implementation of other policy approaches. Most importantly, it binds member states to improve the situation for energy poor and vulnerable customers throughout the process of decarbonising the energy grid. This assures that energy poverty is a consideration in all policy decisions of the energy transition.

While there are no provisions at the EU level that protect consumers from higher network fees due to people leaving networks, there are provisions for assuring that vulnerable consumers and energy poor households have access to renewables and are included in renewable and citizen energy communities. The recast Renewable Energy Directive calls on member states to develop enabling frameworks to “promote and facilitate” the accessibility of renewables for self-consumption to energy poor consumers, as well as identifying and removing the barriers to their participation in renewable energy communities (*Directive (EU) 2018/2001* 2018, Art. 21-22).

The goal of decarbonising the energy grid will have an impact on every Europeans’ life. Thus, taking into account the circumstances of all consumers and making sure it is fair and inclusive for everyone is an equally important goal. Energy poverty, being a multidimensional phenomenon requires a mix of policy measures to address it. The EU took care to mention energy poverty and vulnerable consumers in most legislative acts of the CEP, knowing that they are likely to be the most hard-hit by large-scale systemic changes. However, they did not use the opportunity to write a common definition, nor did they impose any binding measures and targets. Thus, the duty falls onto the member states to navigate this transition, not just without leaving anyone behind, but improving the situation of the individuals and households who are currently in energy poverty. Much of this work will take place at the regional and local level where government have a closer understanding of the problems facing energy poor households.

1.2.3 The Renovation Wave and EU Level Financing

The planned EU renovation wave is one of the biggest EU wide projects that could have massive direct effects on energy poor households. The strategy aims to double the weighted energy renovation rate of residential and non-residential buildings to 2% by 2030 (COM(2020) 662). Energy efficiency improvements are seen not only as a way to achieve the EU GHG emission reduction targets, but also as a cornerstone of the COVID-19 recovery plan. Beyond a potential reduction in energy poverty, the Renovation Wave and the investment that comes with it are expected to have other positive effects such as creating over 160,000 new jobs in the construction sector, particularly among SMEs (European Commission, 2021). A key principle of the Renovation Wave is to make “energy-performing and sustainable buildings widely available, in particular for medium and lower-income households and vulnerable people and areas” (COM(2020) 662). This focus on energy poor households is further highlighted by the EU Commission’s recommendations on energy poverty, which point to the Renovation Wave strategy as a cornerstone in addressing energy poverty (*Commission Recommendation (EU) 2020/1563 - On Energy Poverty*).

In order to facilitate the Renovation Wave, the Annual Sustainable Growth Strategy will increase the volume and accessibility of EU funds for renovations. This new funding increase the available grants, technical assistance, project development support and loans

(COM(2020) 662). Currently, the EU funds projects through financing mechanisms such as Horizon 2020 that serve a twofold purpose of making a direct impact in the region they are applied in and can be replicated in other member states. The Horizon 2020 projects allow for capacity buildings at all levels of government and provide policymakers around Europe with information and tools to make good policy decisions while also providing the funds to experiment with and test the viability of novel approaches and solutions to pervasive issues like energy poverty. The EU also, through its various bodies, provides other forms of support which are relevant for tackling energy poverty. An example is the European Local Energy Assistance (ELENA) facility, which grants financial support for project development services in the energy sector, with a particular focus on energy efficiency. Funding in the early stages of the project development allows the projects to attract more investment; every Euro the ELENA facility has spent on project development has attracted 40 Euros in external investments (ELENA, 2019). Another successful mechanism is the European Energy Efficiency Fund (EEEF). The EEEF facilitates investment in the public sector, which are often throttled by tight budgets; to date the EEEF has committed over 170 million euros to projects where a public entity is the main beneficiary, although this is not exclusively for residential energy efficiency improvements (EEEF, 2018).

1.2.4 NECPs

In the NECPs published on the Commission website, each member state lays out the current state of energy poverty in their country, as well as the current and future policies meant to tackle energy poverty. We see that while it is recognised in all but six Member States, only seven Member States have developed an official definition for their legislatures. Every member state, with the exception of Sweden which makes no distinction between general poverty and energy poverty, addresses energy poverty to some degree in their NECP. Only five Member States however, set quantitative objectives for themselves regarding the reduction of the share of the population living in energy poverty or the reduction in the individual indicators.

The scope and depth of the approaches to energy poverty alleviation policies still varies significantly. Leading countries such as Belgium, France, Lithuania, Spain, Italy, and Croatia have developed integrated strategies to combat energy poverty. In these strategies, energy poverty is understood as a multifaceted issue and is addressed through a range of broad policies such as direct tariff and bill support, protection against disconnections, and energy efficiency investments targeted specifically at energy poor households and vulnerable consumers. Some of the novel approaches are highlighted in the table below.

Examples of innovative national level policies to tackle energy poverty from NECPs.

Lithuania	Implement energy poverty and energy efficiency consultations into the social services catalogue.
Italy	Set up a national energy poverty observatory run by the Ministry of Economic Development.
Spain	A scheme under which energy poor and vulnerable consumers will be allocated shares in collective self-consumption projects.

Croatia	<p>Provide energy consultations for energy poor households and setting up local information centres.</p> <p>Implement a programme to replace old inefficient household appliances with new efficient ones.</p>
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On the other side of the spectrum however, there are still a number of countries which do not have such specifically targeted policies to alleviate energy poverty. The Nordic countries such as Denmark, Sweden, Finland, and the Netherlands where energy poverty, according to the EPOV indicators, does not constitute a widespread problem, do not see the need to develop specific policies to deal with it. Energy poverty is seen as a component of income poverty and thus it is addressed through social policies. These countries developed neither a definition nor indicators to measure and monitor the issue.

Another group of member states are ones where energy poverty is a more prevalent issue but there have not been many policies specifically targeting it. An example is the Czech Republic, where programs to improve home energy efficiency or install efficient heating systems are in place, but have no mechanisms that allow them to focus on vulnerable consumers and energy poor households. Often the issue is addressed through social policies, which are broad and targeted at general poverty not energy poverty. Another example is Latvia, which falls into this category, but has now set a reduction target for the energy poverty rate and is implementing pilot projects to study energy poverty in the national context. These actions reflect the increased attention and importance energy poverty is receiving all across Europe, but also highlight that many countries are still at the early stages of addressing it.

Although the member states are at different stages of addressing the issue of energy poverty we can observe the increase in salience thanks to obligation set forth by the EU to include it in the NECPs. Including energy poverty in the CEP was an important step as it differentiates the issue from general poverty and allows for a pan-European comparison in the coming years. The NECPs show that many countries did not have policies that went beyond general social policy but are now planning and implementing specific policies targeted at energy poverty.

1.2.4.1 Romania's NECP

Romania's National Energy and Climate Plan (NECP) includes five major objectives (Decarbonisation, Energy Efficiency, Energy Security, Internal Energy Market and Research Innovation and Competitiveness) that set the national goals and actions Romania has to implement until 2030, with the main goal to become carbon neutral by 2050. Decarbonization engagements are considered to be lagging in European terms, with regard to the energy efficiency of the building stock. Romania plans to thermally rehabilitate at a demanding rate of 3-4% of the building stock by 2030 (while maintaining a constant pace after that with a view of 2050), which is considered ambitious and in line with the European goals, included as well in the Renovation Wave strategy (COM662, 2020). The Long Term Renovation Strategy (LTRS), addresses the challenges of an old and inefficient national building stock tributary to communism and transition related factors, and lays down plans regarding their insulation, the use of renewables for heating and cooling and the reduction of final energy consumption overall. In terms of impact of these measures, the Commission recommends much higher targets (current targets for 2030 are set at 25.7 Mtoe in 2030, compared to 22.9 Mtoe in 2016-2018). Energy efficiency targets but also a diversification of the resources employed are also a part of the energy security objectives for 2030.

With regard to the specific obligation that Member States have on energy poverty within the NECP, namely (i) a clear legal framework to protect the vulnerable consumers and establish dedicated social budgets; (ii) develop financial and (iii) non-financial safeguards; (iv) a national social assistance information system, Commission considers it a positive aspect that the Romanian NECP includes clear directions on the definition and a methodology for measuring energy poverty, but criticizes the absence of a clear intervention agenda and the lack of assessment data (European Commission, 2020).

2 Romania Legislative Framework

2.1 Existing Policies and Schemes to Protect Vulnerable Consumers

In Romania energy poverty is approached mainly from a vulnerability point of view and the measures and interventions instruments available are almost exclusively social.

The so-called Energy law 123/2012 with subsequent additions and amendments defines the “vulnerable consumer”, and targets three categories of consumers at risk of social exclusion: the elderly, the ill impaired and the poor. The document provides for financial (mainly heating benefits and the social tariff) and non-financial (mainly prohibition from disconnecting certain life-threatened individuals) measures of redress and foresees Government obligation to elaborate a national action plan in order to pursue their application, while vaguely allocating the task between ministries. Despite a clearer iteration of this task in the Integrated National Energy and Climate Plans 2021-2030, it has yet to be issued.

Secondary legislation establishes the eligibility criteria for the financial and non-financial measures:

GEO 70/2011, despite precedence, is regarded to be an application guideline for law 123/2012 as it provides for the implementation of heating benefits for gas. According to it, heating benefits are managed by the social affairs authorities of the local administrations. The regulation proposes a larger definition of energy vulnerability in the direction of heating needs, targeting "single person[s]/famil[ies] unable to maintain an adequate temperature, i.e. 21°C" and with an income within thresholds stipulated by the law, which can be updated annually by governmental decree. Despite a clear provision that income levels would be regularly updated to be in line with national social standards, in reality, they have only been recalculated once through a highly contested Government Decree in 2018 (OUG 114/2018). According to the decree, the omission of income updates has led to large numbers of beneficiaries being ousted from the system into a grey zone (more than 54% from one season to the next - from 236,355 to 129,104 beneficiaries - according to the decree), which rendered them more vulnerable than before. What is more, and maybe one of the most contested measures enacted, was a slow-down of the process of energy market liberalization through a provision that allowed for a continuation of the regularized price system for the entire population in order to prevent price hypes on the market.

GD no. 920/2011 introduces additional details on the implementation of heating benefits. It provides for the fact that applicants must submit a list of owned goods that would be valued monetarily to see if they qualify for heating benefits. Given the fact that these criteria have been implemented by local authorities and that they proved to be highly discriminatory, their application was inconsistent and led to many being ousted from the system. The document also provides for the right of local administration to supplement State-allocated funds from the local budget based on yearly decisions. Despite being an additional safeguard, the application of this measure depends on the availability of local funds, some localities being more able than others to award important amounts of additional funding. Usually rural and semi urban localities with the highest needs are also at a disadvantage. Moreover, yearly decision-making can provide for a high degree of uncertainty and variability in the number of individuals covered. Field research has identified many additional faults imbedded in the system and with a potential high impact on the energy poor: applicants are burdened with a complex procedure,

as too many documents and approvals are needed in order to be admitted into the system, especially given the fact that application must be pursued on yearly basis; many household lack much of the information needed if not accompanied by social assistants; there is great room for stigma; these arguments discourage many to apply; the pressure on the social assistants is high, as the personnel is limited, and the application process quite complex (Teschner *et al.*, 2020).

GEO 27/2013 provides for the establishment of heating benefits for electricity, which is only handed to out those for which electricity is the only fuel used. Heating benefits are allocated as a proportional compensation of heating expenses depending on the income per family member. The rates differ from one fuel to another. This latter provision is particularly discriminating, given the fact that the highest amounts are provided for gas and district heating, whereas the vast majority of the low-income households are on solid fuel or electricity (for the extreme poor). More than 80% of the rural households in Romania heat on wood.

Access to the grid is also an important topic around energy poverty in Romania. NRA Order 59/2013 lists the documents needed for connection. ID and a list of property documents are minimum obligatory requirements. The absence of such documents, which is very typical of extreme poor and vulnerable households, renders them unable to connect, which forces many either into illegal consumption or the usage of solid fuels (including waste), or both. Moreover, the cost of connection, which is much higher than an average monthly salary, leaves many without access to cheaper and more efficient alternatives (Sinea *et al.*, 2018).

NRA Order no.64/2014 on the vulnerable consumers of electricity defines the vulnerable consumers of electricity as the low income or elderly person with health problems, who requires continuity of supply and only provides for safeguards, namely non-financial support, for the second category.

NRA Order no. 176/2015 regulates the social tariffs for low income households. They are provided upon a formal request for households that can prove their average income per capita is below the national minimum wage. Consumption is also limited to certain amounts. Social tariffs have been an important source of energy poverty: consumption limits for electricity had not been updated, many consumed over the limit and ended up on rates higher than for regular consumers, as heating on electricity is particularly intensive; companies did not warn vulnerable consumers that they are about to go over consumption limit. Consumer interest in social contracts decreased progressively. With market liberalization, the option was abandoned altogether being replaced with the so-called general safety-net contract on universal service, which is guaranteed, but at a comparatively higher cost than the liberalized market contracts.

Law 196/2016 on the minimum inclusion income, lumps together all social benefits, in order to better cover the needs of vulnerable persons. The legislation also proposed a new definition for the vulnerable consumer, laying an accent on the ability to keep warm and not on the various vulnerable categories recognized. This perspective is closer to the energy poverty concept, but still it remains restrictive as it only relates to heating, not to cooling. The law was expected to enter into force in 2018, but its enforcement was postponed due to the absence of a centralized data collecting system. The legislation was proposed to be nullified in the event a new dedicated legislation would be adopted in 2021.

Currently there is a debate over a new vulnerable consumer bill to converge with the European agenda and national policy engagements, mainly in the NECP and Long-Term Renovation Strategy (LTRS) in the context of complete energy market liberalization for household consumers as of the 1st of January 2021. A draft was launched in public debate in the winter

of 2020 given the tight agenda requested by the European Commission to converge with the European energy market principles, of which a definition of energy poverty is one. A number of opportunities to make amendment proposals and engage with policy makers followed. The new document, mainly a proposal of the Ministry of Labour, is an inter-ministerial initiative and is currently in the public debate after being rejected in a vote by the consultative Economic and Social Committee, which precedes discussions in Parliament commissions. The negative vote was due to lack of substantive changes. Essentially, beyond the vulnerability concept, which was taken over from the previous bill, with an addition to also include some isolated households, and clarifications on the previous three categories (age, income, health situations), the proposal includes a definition on energy poverty, which refers to the absence of the minimal basic energy needs to households, in terms of accessibility, access to stable supply, energy efficient buildings, and an indirect reference to summer energy poverty. However, compared to any prior legislation, the document does not provide additional intervention tools to match the issues identified, and remains, as such, explicitly oriented towards social solutions. The benefits allocated over the warm season are rather a supplement to limited income than a safeguard due to increased consumption generated by high summer temperature. Implementation will also be guided by the Labour Ministry which is a social-affairs entity. Some mentions are made to financial instruments for the purchase of efficient home appliances or for the improvement of the energy efficiency of buildings. However, no further working instruments are provided in that respect. Given the enlarged definition, it might be reasonable to think that the ground has been set for a variety of other tools to be produced beyond the competences of the Labour Ministries in adjacent policies and concrete actions elaborated by other entities, such as those envisioned in the renovation plans.

2.2 Energy efficiency legislation and strategies

Energy efficiency and energy poverty met at a much later point in national policy. The association is rather present at the level of national strategies and action plans, whereas implementation is still dim. At the local level the implementation of efficiency interventions brings out a number of challenges: from the capacity of local authorities to attract funding, to community trust and cooperation, to the availability of co-funding, and property issues or other administrative and legal limits that might impede upon the implementation of innovative measures as identified in field research (Sinea, 2018). Also, so far public programmes and funding for the rehabilitation of single-family housing have been absent. However, where residents made interventions on their own, the impact at the level of the energy bills was visible.

In Romania the climate and energy strategies and policies generally provide for the existence of an important starting point for the Government to commit to the operationalization of interventions in the area of energy poverty, especially as most of these refer to the vulnerable consumer and energy poverty as priority targets.

Romania's Draft Energy Strategy 2019-2030, with an outlook to 2050, elaborated by the Romanian Government is an analytical and programmatic document that envisions the strategies to develop the Romanian energy sector. Though Draft Energy Strategies have never entered into force due to political sensitivities, they have been regarded as guiding documents by the public administration. Alongside objectives related to access to clean energy, improvement of the infrastructure, increased economic competitiveness and better governance of the energy system, the document talks about the protection of the vulnerable

consumer and the reduction of energy poverty. It acknowledges the importance of the topic, recommending a better definition and operationalization of the concept of energy vulnerability. It also puts forwards a number of solutions: (i) thermal insulation and overall energy efficiency programmes for the buildings located in communities affected by energy poverty - a cornerstone solution to reduce energy poverty and reduce GHG emissions; (ii) a reform of the social benefits system, to better cover the needs of the vulnerable consumer. With reference to energy efficiency, the strategy also mentions the rehabilitation of district power plants alongside the investments in smart meters and smart energy infrastructure in order to improve efficient consumption in a larger sense.

The **National Long-Term Building Renovation Strategy** (LTRS), adopted by the Romanian Government in November 2020, fits into the European obligations as the most relevant document that sets to address the challenges of a low-efficiency building stock with an impact on energy consumptions and GHG emissions and other manifestations of energy poverty, organized in three agendas: 2030, 2040, 2050.

The document presents an overview of the Romanian building stock, which is tributary to a combination of factors: communist legacy in terms of buildings and construction standards, legal ownership patterns, more recent market trends and the European quality standards imposed in national legislation. According to the document, in Romania, there are around 5.6 million buildings, of which 90% are residential. Around 85% of the dwellings were built before 2000 of which the vast majority (60%) before 1977 (LTRS, 2020). The largest part of the population lives in multi-family building blocks or in small single-family units. Over 63% of these dwellings have less than 50 m² of usable floor area, indicating lower living standards and an over-crowding of the spaces. In addition, in Romania there is a high ratio of owner-occupied houses (around 94%) which leads to difficulties in thermally rehabilitating the buildings. Related to the consumption patterns, the building sector (residential, commercial and public) is responsible for the use of 42% of the total final energy (PNAEE, 2018), with the residential sector, placed on a decreasing curve of 8.4% over the past few years (DG Energy, 2018). While over-all numbers indicate a positive trend, data broken down on the types of fuels used shows a different picture: the largest share of the energy used in the residential sector is based on biomass (mainly wood burnt in old heating stoves and mainly in the rural areas). The consumption of wood is followed by that of gas (PNAEE, 2018). The buildings sector is qualified as that where the biggest reductions in consumption can be achieved. Even though the existing data offer a good overview of the general situation, data on the quality of the building stock remains a critical issue both in view of creating a national integrated databases and for the purpose of eventually reporting into the systematized European Digital Buildings' Logbook.

National targets settle around the renovation of 6% of buildings by 2030 and approximately 79% of buildings require renovation or complete reconstruction by 2050. The largest share of buildings (around 91%) requiring renovation are in the residential sector. Based on this evidence, for the 2021-2030 period, a significant reduction in energy consumption, GHG emissions and energy poverty can only be achieved if multi-apartment buildings and single-family units primarily, followed by public buildings will be included in rehabilitation programmes.

2.3 National Legislation

Energy Performance of Buildings - Law 372/2005 and Law 101/2020

The Romanian legislation on energy performance of buildings transposes the most important European directives on energy efficiency: 2010/31/UE, 2012/27/UE and 2018/844/UE and includes the objectives stated in the LTRS document. While energy poverty is not specifically referred to among the priorities in Law 101/2020 that amends landmark Law 372/2005, it is mentioned in the articles that transpose the LTRS objectives. Therefore, alongside the need for a coherent building database and the design of efficient policies and financial solutions that will support the renovation process, energy poverty should be addressed by targeting the lowest energy performance households that usually overlap with the lowest levels of income. Despite important limitations with regard to energy poverty, to which they only refer briefly, these documents are relevant for creating a framework for more concrete measures on the ground, provided that an improved energy poverty legislation should be put in places.

It is worth describing the more general provisions of these legislations with a view of their indirect impact on energy poverty. Overall, the set of measures devised aim to increase the energy performance of buildings by taking into account variables: outdoor conditions, indoor comfort requirements, energy performance standards and cost opportunities. The goal for 2050 is to have localities with an improved urban appearance and better planning, new NZEB buildings and thermally rehabilitated older constructions, accompanied by energy performance certificates as well as tenants associations that are correctly informed about new developments in terms of energy efficiency.

In terms of flagship modifications brought by 101/2020 law, starting with 1st of January 2021 all new constructions need to be NZEB or have the lowest energy consumption level possible. At the same time, it will be mandatory for all new and refurbished buildings to integrate alternative energy systems from renewable sources. The role given to energy auditors is high in the process as they will be in charge with both overseeing implementation and with issuing energy performance certificates, which they will be integrating in the national database on the performance of buildings. To that end, the legislation provides for efficiency standards and constructors will have to take into account factors related to a comfortable and healthy indoor environment, indoor air quality and the impact on the environment. They are required to make use of building materials in accordance with efficiency standards. While the existing legislation (372/2005 law amended by 101/2020 law) transposes the European norms, it still lacks norms of application causing widespread confusion with regard to implementation. More specifically, while the European Commission has included the retrofitting of energy poor households as one of its priorities in various documents (EU Green Deal and Renovation Wave, directives and recommendations), national legislation on buildings refers to the concept vaguely, without any clear measures or obligations imposed on various parties (national and local authorities, constructors, non-governmental actors), leaving the topic unmet with clear solutions, while overall construction requirements, as described, remain highly inaccessible to vulnerable households.

3 Energy Poverty Alleviation at the Local and Regional levels

While energy poverty is receiving increased attention and support from the EU, and in most cases even the national level, a lot of the action will need to take place at the local governmental level. The EU has stressed the importance of local level action and sought to empower municipalities to take action, for example in the Winter Package. It is important for local and municipal governments to internalise the information on energy poverty coming from the top and implementing policies to combat this issue. Local governments should nurture cooperation and coordination between all the governmental departments that are affected and can affect energy poverty; for example, the energy, health, housing, and social development departments. The following sections will look at good practice at the local level in addressing energy poverty, it will look at specific policies and their implementation, as well as cooperation with civil society groups and engagement from the private sector. The examples and analysis presented here stem from desk research as well as 33 interviews with experts on the topic and stakeholders from a range of backgrounds dealing with energy poverty, both from the Romanian context as well as the wider EU. The interviews followed a semi-structured format based on the individual expertise and experience of the candidates. The interviews focused on gaining general insight into energy poverty development across Europa as well as the eastern European context specifically. After a general discussion on energy poverty the questions focused on policy responses in three categories; social policy, energy efficiency, and information policies, as presented below.

3.1 Social Policies

Historically, the most common way of alleviating energy poverty, as noted by various experts we interviewed, was to address it indirectly, treating it as a subcategory of general poverty. The aim was to ease the financial burdens that low-income households face by providing direct financial aid such as income support. Another common approach noted by interview participants, which targets energy poverty more directly, is utility bill support, where the government pays a part of the utility bill of low-income or otherwise vulnerable households. Often these utility bill support mechanisms are available during the winter months when utility bills are highest due to increased heating expenditures. These schemes are most commonly implemented at the national level as local governments lack the funds to operate such a scheme. However, experts we interviewed also noted that inefficient administrative and bureaucratic processes made it difficult to implement schemes even when the funding was sufficient. Here they also faced problems with rigid processes that made targeting energy poor household difficult. There is also a distinction between recurring payments to vulnerable households and one-off emergency grants, which are given for unforeseen tough circumstances to avoid a disconnection.

While direct financial support is a useful policy tool to help vulnerable households meet their immediate needs, it does not address any of the root causes of energy poverty. Financial aid plays an important role in alleviating energy poverty, but should be seen as a bridging solution as in the long run it is very expensive and will not contribute to reductions in carbon emissions. A further issue with income or energy-bill support is their targeting. While income-poor

households are often also energy poor and will be able to benefit from such a scheme, many households affected by energy poverty are not income-poor enough to qualify for income support. The following are two examples of innovative and replicable programmes to alleviate energy poverty from the EU.

Der VERBUND-Stromhilfefond¹, Austria

The VERBUND-Stromhilfefond, or “electricity help fund”, is a programme operated by VERBUND, Austria’s largest electricity provider, and the NGO Caritas. The programme offers one off emergency relief by taking over a bill (up to 100 euros) in order to prevent a disconnection, but the overall approach of the programme is more holistic than a simple bailout mechanism. The programme offers free energy consultations to low-income households. The consultation estimates the electricity usage of the household appliances and identifies inefficient ones. The consultant also gives advice on how to reduce energy consumption based on the observations made in each household. After one year, a follow-up visit takes place to gauge the success of the intervention or to discuss further measures. Beyond this, the programme also offers free exchanges of electric household appliances, if the one found in the household is deemed too energy inefficient it will be replaced by a modern, efficient appliance.

The programme has been running since 2009, assists 400-500 households a year and showcases an effective programme to address energy poverty. The three-pronged approach shows that the programme is aiming for sustainable change; via behavioural change through the consultations, long term energy consumption reduction through the exchange of appliances, coupled with direct financial support to alleviate short term stress. Changing behaviour and installing efficiency appliances also has the potential to make a positive contribution to carbon emissions in the medium to long run.

CCAS Emergency Financial Assistance², France

The CCAS is the communal centre for social action. It is a branch in every municipal government in France and operates in the areas of welfare law and providing social assistance and social action. The CCAS in France has implemented a programme for providing microloans or grants for low-income households that cannot pay their utility bills. The programme runs through the social workers in the municipality and households in need of a loan need to make their request through a social worker. The program allows households who are otherwise not receiving state aid to access support if their situation deteriorates, with a special focus on old people and households with children. The CCAS will also negotiate with the utility providers on behalf of the customer regarding later payment dates or payment plans in order to avoid disconnections, in particular when temperatures are low. This can also be coupled with the *Chèque Énergie*³ programme which is a yearly check granted to low-income households, ranging between 48-277 Euros, to pay for heating fuels and electricity. The grant can also be used for home energy efficiency improvements, and recipients of the grants also receive tips on how to reduce consumption within the households.

It is important for vulnerable consumers to have access to safety nets such as emergency financial assistance. It is also effective to structure these programmes at the local level so that the users of the programme know whom to turn to and the help can be delivered quickly and directly. Programmes such as these not only alleviate financial pressure when needed, having consumers know they exist can also alleviate psychological stresses for vulnerable

¹ <https://www.verbund.com/de-at/ueber-verbund/verantwortung/soziales/stromhilfefonds>

² https://www.aide-sociale.fr/centre-action-sociale/#Toutes_les_communes_poss%C3%A8dent-elles_un_CCAS_?

³ https://www.aidesociale.fr/chequeenergie#D%E2%80%99autres_aides_sont_cumulables_avec_le_ch%C3%A8que_%C3%A9nere

consumers, knowing that if unexpected circumstances arise, they have a support mechanism to fall back on.

3.2 Energy Efficiency

As we have seen throughout the paper and as noted by many experts interviewed, low energy efficiency in the home is one of the drivers of energy poverty. Poor thermal insulation of the buildings as well as high energy consuming household appliances results in households using more energy and thus spending more money to reach the same utility as a household with better insulation and more efficient appliances. The result is similar to a poverty trap, where energy poor households cannot make the necessary investments in new appliances or thermal insulation renovations because their high running costs leave them unable to make a large capital investment. Aside from the adverse effects this has on individuals enduring this state of energy poverty, the environmental cost is also higher due to their inefficient energy consumption. Policies targeting energy efficiency have become increasingly attractive as they bring a number of benefits to the households of the energy poor, while also providing synergies with other policy objectives.

Due to the poor energy efficiency of the Romanian building stock, energy used for heating accounts for 55% of total energy use in apartment buildings and can be as high as 80% in single houses (BPIE, 2014). This shows that the potential for energy saving and thus cost saving for the consumer at the residential level is enormous. Romania's residential building stock has an average energy consumption of 308 kWh/m², which is more than double the 150 kWh/m² that a Label A house would consume (BPIE, 2014). This also highlights the differences between urban and rural households, where rural areas have more single-family detached houses, which are particularly difficult to heat in the cold winter months. Cities also tend to have better data on the buildings stock and living situation of households and can thus more effectively target policies at those most in need.

Energy efficiency and expenditures in the home are also heavily affected by the efficiency of the home heating system and the household appliances in use. Low-income families are often left with no choice but to buy the cheapest appliances, which tend to be the most energy inefficient. The same goes for the home heating systems, low-income families have fewer options when it comes to heating methods and are more likely to be stuck with inefficient technologies such as wood or coal burning stoves. Experts we interviewed explained that low-income families face a lack of space for installing individual heat pumps, high-upfront costs for purchasing a new individual heating system and lack of access to efficient district heating systems.

Grants for social insulation projects for rental buildings⁴, Flanders, Belgium

The regional government of Flanders in Belgium has implemented a programme to help overcome the split incentive dilemma. Property owners often forego investments in energy efficiency measures, as they cannot capture the return on investment due to the tenants capturing all the benefits. The program provides grants to landlords to invest in energy efficiency upgrades for their rental properties. The grants are given under the condition that the landlord cannot raise the rent for the occupants once the renovations have been completed. The grants cover the expenses for roof insulation, high efficiency glass and cavity

⁴ <https://www.vlaanderen.be/huur-en-isolatiepremie>

wall insulation. The program is targeted specifically at low-income and energy poor household as only landlords who rent accommodations under a certain price threshold or are renting to a person or household that is in a vulnerable group. Lastly, each request for an insulation grant is supervised by a project promoter who takes care of the administrative processes underlying the programme, including securing the financing, communicating with the property owner, and in many cases carrying out the insulation works directly as the project promoters are often companies licensed to carry out such works.

The programme is effective at addressing the issue of energy poverty because the affected vulnerable consumer does not need to stem any costs or even engage with the administrative procedures. The tenants thus receive the benefits of the energy efficiency upgrades, which will save them money on utilities and improve their comfort of living, while not facing an increase in rental prices. The landlord also, in most cases, does not have to stem any costs and the upgrades will add value to their house in the long-term even though they cannot raise the rent price in the short-term. Lastly, it stimulates the local economy, as the project promoters are local firms who are able to increase their business through this programme. Programmes like these are important because they create investment where under free market conditions there would have been none, the government steps in and effectively corrects a market failure brought about by the split-incentive dilemma.

Central Heating Fund⁵, UK

The Central Heating Fund was introduced in 2015 in the UK. It is funded at the national level with local authorities applying for funds and implementing the projects at the local level. The measure is targeted specifically at energy poor households who have difficulty heating their home or face high energy-expenditures due to the lack of a central heating system or reliance on expensive heating fuels. The installed measures must provide space heat and domestic hot water. The local authorities' bids for funding must show how the measures will reduce energy poverty in line with wider national targets, they are cost effective, in that they effectively target energy poor and vulnerable households, especially ones with health concerns (UK Government, 2015). The fund greatly increases the ability of energy poor households to heat their dwellings efficiently. More modern and efficient central heating systems reduce the fuel-consumption for household heating, reducing emissions and household expenditures associated with heating.

The programme was designed with a holistic view and seeks synergies with other programmes. Priority funding is given to projects that have also applied to other programmes such as insulation renovations, where a new central heating system will be more effective. Particularly in rural areas, central heating systems often replace a fireplace. This reduces indoor air pollution and allows for better monitoring of fuel consumption through the installation of a smart meter. The fund also targets the rural population as they are more likely to live in detached and semi-detached houses and are less likely than apartment blocks to have a central heating system or access to district heating. Rural housing tends to be larger with more exposed walls and is thus more difficult to heat. Without a central heating system many houses do not have the option of heating every room in the house and achieving a sufficient level of thermal comfort. It is important to implement programmes like these to assure that, particularly rural, populations are not left behind.

⁵ <https://www.gov.uk/government/publications/central-heating-fund-local-authority-guidance>

3.3 Information Policies

The third policy approach that governments can take to combat energy poverty is through targeted information campaigns. These information campaigns can take a number of different approaches. One important one is to improve the understanding that low-income households have of their energy bills. Experts we interviewed expressed concern that low-income households were often lacking the “literacy” to understand their tariffs and their contracts. A proper understanding of their bills and contracts is important in order to evaluate alternatives and to understand where their money is going so that behavioural changes can be targeted effectively. The second approach to information campaigns is to influence behaviours at the household level to ensure that energy is consumed as efficiently as possible. This includes making small energy efficiency improvements in the home such as changing to lightbulbs that are more efficient. These do not require high upfront investments but still have a long-term positive impact, by both reducing the energy bill and reducing carbon emissions. Lastly, information campaigns also involve the question of how to effectively identify and target vulnerable consumers. This involves increasing direct grassroots interaction with vulnerable consumers, as well as offering services such as community energy help-desks where consumers can receive – free of charge – advice on energy questions regarding the household.

The channels through which households receive this information are an important aspect for making sure it reaches the right people. Experts noted that advice regarding energy poverty is more effectively conveyed when it comes from people the households trust. In light of this, training social workers, who already have personal ties with the households, to identify and address symptoms and drivers of energy poverty, has proven an effective way to spread information among vulnerable consumers. The framing of the help is also important; the aforementioned energy help-desks should be available to all consumers and offer advice on how to reduce household energy consumption not explicitly targeted at the energy poor. Thus, framing it as “aware” consumer behaviour not vulnerable consumers asking for help. Furthermore, the households who receive this information and implement changes will have a multiplier effect as they spread the word to their neighbours and friends who may be facing a similar situation.

Energy Advice Points Barcelona⁶, Spain

The Energy Advice Points (EAP) were set up in 2017 in order to provide vulnerable consumers access to information regarding their energy rights. Shortly after, the EAPs also started offering advice on energy saving and efficiency. Barcelona established 11 EAPs based on prior pilot projects. Between 2017 and 2019, the EAPs had helped 80,951 cases of energy poverty. The EAPs empower consumers in relation to their right to energy and have prevented over 37,000 households from being disconnected from their utilities (Barcelona City Council, 2019).

The program offers simple tools such as an energy calculator coupled with advice and recommendations to help people understand and reduce their consumption at home. The EAPs evaluate utility contracts for energy poor consumers to see if there are cheaper options or if a switch to a different tariff structure would benefit the household in terms of reducing their utility costs. The EAP agents also check if the households are eligible for any social discounts or tax exemptions that the consumers may not have known about; when this is the case they assist with the application process and other bureaucratic hurdles. Lastly, the EAPs offer

⁶ <https://habitatge.barcelona/en/housing-services/problems-paying-your-home/energy-rights>

information about and help set-up self-generation solar energy projects at home. In some cases, the EAP agents will conduct home visits for an energy audit to gain a better understanding of how to help a specific household.

Introducing EAPs has been a huge success in Barcelona as they offer a one-stop-shop for a broad range of services that help energy poor households. They empower the consumer to know their rights and offer low-cost easily implementable solutions to reduce their energy bills. In 2018 the advice given to 2,008 individuals by the EAPs energy advisors resulted in over 100,000 Euros in savings. The energy advisors were also responsible for a 2,165 kW reduction in final energy consumption among the households they worked with (Nordic Sustainability and C40 Cities, 2020). These numbers show the impact that merely raising awareness and making information readily available can have economically and environmentally. With only 40 energy advisors, the EAP model is highly replicable for cities of any size where energy poverty is an issue.

Assist2gether Project⁷, Various EU Countries

The Assist2gether project took a more direct approach to interacting with vulnerable consumers when compared to Barcelona's EAP programme. The project trained home energy advisors (HEA) who interacted directly with energy poor households. The HEAs were trained in a holistic way, in order to take into account the "multi-sectorial and multi-disciplinary nature" of energy poverty (Assist, 2020). The HEA training course included modules on the energy sector, energy consumption behaviour, communication, as well as ethics components. Some of the HEAs trained for the Assist project were social workers and thus could bring a new set of skills and knowledge to the households they had already been working with. An important finding of the project was how effective advice given was when it came from a person with whom the household already shared a bond of trust. The home visits were the most effective at reducing energy consumption, with up to 7% in energy savings in households that benefitted from direct interaction with HEAs and customised solutions based on the unique situation. However, the project also showed that just receiving general, non-customised, information from HEAs, still resulted in energy saving of 2% in the household (Assist, 2020).

The Assist project, like Barcelona's EAP programme, showed the energy savings that are possible simply by effectively informing energy poor households about the actions they can take. The results make a strong case for including energy poverty topics in the social services catalogue and requiring social workers to advise on these issues, should they be present. Having social workers act as HEAs can be very cost effective as the only extra costs incurred are those for their training, assuming the city has a system of social workers in place. Furthermore, social workers will already have a bond of trust with affected households and a deep understanding of the local context. However, it is not enough to rely only on social workers as many households who suffer from energy poverty but do not have access to a social worker. It is important to offer information about energy rights and energy efficiency through a number of channels for it to reach as wide an audience as possible. This information will go beyond helping energy poor households but can lead to energy and monetary savings in many households.

⁷ <https://www.assist2gether.eu/eng-home>

4 Policy Recommendations

Based off the literature review, expert interviews and primary quantitative research conducted as part of this project, the following policy recommendations at the national and local level have been developed.

4.1 National Level

Guaranteed Energy Access

To prevent poor health conditions and adverse social effects Governments should guarantee that all households have access to affordable and reliable sources of energy for heating and other necessities. In the Romanian example where the cost of a gas supply can be prohibitively high, the government must step in to allow households access to switch to more reliable and efficient – and in the long run – cheaper fuel sources. This also creates opportunities for implementing renewable technologies to meet part or all of the energy needs of a household. Especially in rural areas there are opportunities for leapfrogging.

Rehabilitation of the worst performing buildings

As shown by the data gathered in this project, energy poor households do not cluster in buildings with the worst energy performance. The buildings with the lowest energy performance do tend to be inhabited by lower income citizens. Thus, not only are the absolute energy savings the highest, so are the marginal cost savings of the inhabitants in relation to their income. Renovations also act as a buffer against people falling into energy poverty if energy prices rise.

Additionally, energy efficiency renovation programmes should put more weight on single family households, particularly in suburban and rural areas. These are often excluded from programmes as the emission reduction is greater when renovating an apartment block, however by targeting single family homes it is possible to precisely target energy poor households. Governments need to, based on the specific context of their country, find a suitable balance between the marginal benefits of each euro spent on renovations of the emission reduction versus the social benefit.

Funding information campaigns and energy help desks

Informing vulnerable consumers on how to save energy within the home simply through behavioural changes, helping them understand their energy bills and their consumption, showing them how to switch electricity supplier to get better tariffs, can be important first steps in ameliorating their situation. This can be achieved both passively and actively. Passively, by setting up energy help desks in cities and towns where citizens can go to receive information and advice on matters of energy within the household. The help desks can also provide vulnerable citizens an overview of the assistance programmes available to them and can directly assist them with the application for these, as the administration and bureaucracy often turns vulnerable consumers away from such programmes. Lastly, energy help desks can be a valuable resource not only for vulnerable citizens, but for everyone. All citizens can make use of the service and potentially save money and reduce their carbon footprint.

A more proactive approach can also be implemented where social workers are taught how to identify energy poverty within the households they work with. Such programmes would also be invaluable in terms of collecting data on energy poverty. Having direct access to energy poor households also helps in determining the size and depth of the intervention needed and also facilitates access of the vulnerable consumers to assistance programmes. The benefit of this approach is that the truly vulnerable who may not actively seek out help or advice, for example by visiting an energy help desk, can be reached. Funds for such schemes, implemented at the local level should be made available at the national level, with equal opportunities to access these funds for metropolitan areas and municipalities. Local governments, especially of small municipalities, often do not have the money to implement such programmes on their own. Thus, funding should be given based on the population and the extent of energy poverty in a municipality. The funding should cover all, or at least a majority, of the costs of training the staff, setting up the help desk, and operation costs.

4.2 Local Level

Data Collection and Analysis for Policy Needs Assessment and Targeting

The effective use of data on buildings, energy consumption, and income levels at the municipal level can be an invaluable asset in identifying and alleviating energy poverty and reducing GHG emission. Most municipalities have troves of unused data on the relevant indicators of energy poverty. Proper systematic use of this data can help municipalities better understand where interventions are necessary and on which driver of energy poverty to focus these interventions.

During the course of this project we had access to the municipal data on the renovations state of buildings, social assistance programme for income and heating and social housing, which was complemented by survey data from 826 randomly selected households. The survey data included data on income, energy consumption, and subjective perceptions of quality of life and comfort. This precise data meant that energy poor household could be identified. Unlike previously assumed clustering, energy poor households were very much dispersed throughout Cluj-Napoca. The data showed that energy poor households existed both in buildings with poor energy performance as well as ones with better performance, highlighting that income was still the most significant driver of energy poverty. While renovating the worst performing buildings is important for reducing energy costs for those households, as well as more generally in achieving climate targets, making proper use of data to accurately identify energy poor households allows more precise targeting of social assistance programmes, such as those for heating and cooling. This would especially benefit the households who are above the poverty line but who fall under it once they pay for their energy bills and are often excluded from various social assistance programmes.

Work with local stakeholders to access data and identify energy poverty

Building on the previous recommendation of data collection, local authorities should work with the relevant stakeholders to access the data which they do not normally have. A key stakeholder in this are the utility companies as they hold the data on energy consumption, late payments, disconnections, and informal access. A close collaboration with these key actors can help local governments identify indicators or energy poverty early on. Working with local civil society organisations can complement the quantitative data of the utility companies with qualitative insights from the organisations working on the ground with vulnerable households.

5 Conclusion

Energy poverty will remain a salient topic throughout the EU as the energy transition progresses, with the renovation wave directly targeting almost every household's energy use and consumption. The overarching nature of energy poverty, in terms of its varied drivers and impacts, means it will remain a central point of discussion for designing a Just Transition. In addition, with climate change moving forward, extreme temperatures will possess challenges for adequate heating and especially cooling of housing. As a result, energy poverty will also become a more prominent issue during the summer months. Therefore, as a preventive measure, energy poverty should be proactively confronted at the local and national level, while ensuring the collaboration of a broad range of stakeholders.

The present paper has discussed innovative approaches to tackle energy poverty from a number of different angles. These approaches however are still not implemented at a large scale across the EU. Energy poverty being mentioned in the NECPs and a bigger focus on measuring it throughout the EU is a welcome development, however, the targeting of energy poverty alleviation strategies and policies is still too broad and ill defined. It is clear that in order to accurately target and energy poor households, the data must come from reliable actors at the local level. Therefore, national governments need to step in and support municipal governments in building up the structures and systems to gather and use data effectively.

Energy poverty is closely linked to income-poverty. Our findings reconfirmed this correlation and identified low incomes as the leading determinant of energy poverty. As emphasized by the experts interviewed as part of this project, increasing energy efficiency in buildings will be the cornerstone in reducing carbon emissions and energy poverty simultaneously in the medium and long term. However, in the short term it is evident that more efforts need to go towards identifying energy poverty and alleviating it with financial support in the short-term, to allow everyone to live comfortably and healthily in their own home and to achieve, the social, environmental, and health benefits that energy poverty alleviation can bring.

Energy poverty reduction targets need to be ambitious and should be aligned with emission mitigation targets. To achieve the social buy-in needed for a successful Just Energy Transition, governments need to make sure that vulnerable people will not be left behind. The EU has the opportunity to go beyond what has been done at the level of the CEP and use the *Next Generation EU* recovery funds to push energy poverty alleviation into the forefront and lift it up on the priority list of member states. Embracing the principles of solidarity and cohesion within the EU between member states and between individuals, can be done first and foremost by improving the living situation of those most vulnerable. Alleviating energy poverty will be an important step in realising these principles.

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