



Energy poverty and vulnerable consumers in the energy sector across the EU: analysis of policies and measures

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EXECUTIVE SUMMARY

Energy poverty, often defined as a situation where individuals or households are not able to adequately heat or provide other required energy services in their homes at affordable cost, is a problem across many Member States. This is due to rising energy prices, recessionary impacts on national and regional economies, and poor energy efficient homes. The EU Survey on Income and Living Conditions (EU SILC) estimates that 54 million European citizens (10.8% of the EU population) were unable to keep their home adequately warm in 2012, with similar numbers being reported with regard to the late payment of utility bills or presence of poor housing conditions. Based on these proxy indicators, a particularly pervasive problem is highlighted in Central Eastern European and Southern Europe Member States.

It is important that Member States recognise and address this problem, as ensuring basic energy services is critical to ensure that communities do not suffer negative health impacts, do not become further entrenched in poverty, can maintain a good quality of life, as well as ensuring the financial outlay to assist households that require support does not become too burdensome. While allowing for full competition in energy markets, Governments and regulators have a role to protect the most vulnerable communities, and prevent groups in society falling into energy poverty. The functioning of energy markets can clearly have an impact on this situation, through ensuring consumer protection and safeguards, offering competitive tariffs (and access to them) and assisting in the efficient use of energy.

This policy report from the INSIGHT_E consortium assesses how Member States define the issue of energy poverty and

vulnerable consumers, and the measures that have been implemented to address these issues. Under the Third Energy Package, Member States need to identify vulnerable consumers and put measures in place that affords them adequate attention, and where appropriate, address issues of energy poverty.

Key findings: definitions

- Definitions used for vulnerable consumers vary significantly across Member States, reflecting differences in problem identification and in approaches to action.
- Less than a third of Member States explicitly recognise concepts of energy poverty. Those that do see it as a **linked yet distinctive** problem from vulnerable consumer protection.

Our review highlights the quite distinctive ways in which Member States have both recognised and chosen to address the issues of vulnerable consumers and energy poverty. While this strong subsidiarity approach recognises national differences, it means there is a danger of Member States not addressing the dual challenges of additional consumer protection and access to the markets for vulnerable consumers, and energy affordability concerns. There is also a risk of vulnerable consumer actions not being aligned with or contributing to measures to address energy poverty.

The report also highlights that energy poverty is a linked yet distinctive issue from vulnerable consumers, and requires different metrics to define it and measures to tackle it. We estimate that less than a third of Member States recognise energy poverty at an official level, while only four countries have legislated definitions (UK, Ireland, France, Cyprus). However, it should be noted that many

countries do have civic organisations engaged in trying to tackle the problem in local communities around Europe. The study also highlights that energy poverty is not only a regulated energy markets issue; in fact, it may be more prevalent in off-grid communities, or those associated with other national markets e.g. district heating. In addition, it should not only be regarded as an affordable heating issue but cooling too, and could also include energy expenditure for mobility.

The distinctiveness of the issues points to separating out action under different strategies, and to that end we make a number of recommendations. Where different strategies exist, it is important that they are consistent and mutually reinforcing. It is also apparent that this is quite a new area of policy making that is challenging, particularly around defining vulnerability, operationalising definitions and effective targeting of measures. Therefore, we consider the sharing of best practice between Member States on definitions, data and measures to be critical, and one that can be facilitated by the Commission.

Key findings: measures

- **Financial interventions** are a crucial means of short-term protection for vulnerable consumers. Many Member States use the social welfare system to both identify recipients of support and distribute payments. Enhanced targeting of energy-poor needs to be balanced against administrative complexity.
- **Additional consumer protection** measures focus on vulnerable consumer protection, and are dominated by disconnection protection. This category also has a diverse set of measures, primarily coordinated by regulators and energy supply companies. Many measures e.g. billing information, codes of conduct, debt protection are often most prevalent in strongly liberalised markets.

- **Energy efficiency measures**, particularly those focusing on building retrofit, are a key part of a strategy to address energy poverty. There is considerable scope for increased targeting of such measures, although this requires an understanding of which are the energy-poor households. There are a wide range of approaches to implementation e.g. funding source, extent of targeting, implementing body. Such factors need to be considered in view of national circumstances. There are already well understood barriers to energy efficiency measures. Strong incentives for take-up in low income households are needed, and designed to promote awareness and key benefits.
- **Information provision**, including measures relating to price comparison and transparent billing, are often found in Member States with the most liberalised markets. Where there is a strong civic society movement in relation to energy or fuel poverty, the number of **awareness campaigns** is higher. Greater awareness of energy poverty and how to tackle it could come through the greater use of smart metering.

While definitions are critical for orientating action towards the challenges of vulnerable consumers and energy poverty, effective action then needs to be developed, in the form of strategies and policy measures. It is evident that a range of policy measures is required to address these different challenges, tailored towards national circumstances (the policy approach, extent of market liberalisation, and physical characteristics of household energy and building stock).

Financial interventions are crucial for addressing affordability in the short term, and can be used to complement longer term measures that address the underlying structural issues of energy poverty. For example, in Scandinavian countries and the Netherlands, social support is provided but also significant effort has been and is being

put into improved energy efficiency of social housing stock. This integrated approach means that financial support does not become the main policy for ensuring affordability but is rather a transition measure, which remains to ensure a safety net but is not relied upon. Member States have used many different financial mechanisms, either through social welfare payments, or direct payments to specific groups e.g. elderly, to assist with energy bills. A number of Member States also have social tariffs in place, ensuring that more vulnerable consumers can access the most affordable energy.

Targeted consumer protection measures are particularly important for vulnerable consumer protection (and access) in regulated markets. Therefore, there are particularly strong roles for National Regulatory Authorities (NRAs) and energy companies. They are critical for ensuring that markets operate in a way that does not disadvantage vulnerable consumers, through guaranteeing supply, establishing codes of conduct for market players, and by companies identifying vulnerable consumers.

There is considerable potential for much more targeting of energy efficiency measures across Member States, to better address energy poverty, and increase energy affordability for those most vulnerable to higher prices. However, targeting needs to be done in an appropriate manner, to consider relevant indicators to allow for effective targeting, how support is delivered and by whom, and how such measures are to be funded. Given the scale of energy poverty problems observed in some Southern and Eastern European countries, energy efficiency measures could offer an important opportunity to reduce energy consumption, and improve affordability, particularly for lower income households. As this study highlights, there are already some excellent initiatives being undertaken that could be further scaled.

Finally, to allow for strong participation in the energy markets, providing adequate information to vulnerable consumers is critical. Awareness raising of how to increase affordability of energy services is also important. In specific Member States, we see that civic society groups and other non-governmental organisation play a critical role, in both assisting energy poor through various measures but also in pushing the agenda with government. Such campaigns are important for wider recognition and understanding of energy poverty issues. A potentially important development is the roll out of smart meters in different Member States. This potentially offers, subject to data protection, the opportunity for consumers to better manage their consumption but also energy companies to identify vulnerable consumers. As smart metering becomes more the norm, it will be important to share learning concerning how this technology can help in consumer protection and enhancing affordability of energy use.

A key conclusion from our review is that many measures are being implemented across Member States, focused both on vulnerable consumers and on energy poverty. However, these are distinct issues, and are targeted by different types of measures. Measures focused on vulnerable consumers offer protection within regulated markets, and facilitate access and participation. They are often short-term in nature, providing relief or ensuring ongoing supply in the face of indebtedness. Energy poverty measures on the other hand are explicitly focused on lower income households, and seek to address longer term structural problems of building energy efficiency.

Based on this study, we make the following recommendations –

Recommendation 1. Recognise that the issues of vulnerable consumer protection and energy poverty are distinct.

Both are important challenges that are linked but require different solutions. Vulnerable consumer issues concern protection within and full access to the market, and curative solutions. Energy poverty concerns affordability, is often structural in nature and requires a long-term, preventive approach. It is important that this distinction is communicated clearly to Member States through legislation, who can then develop effective measures.

Recommendation 2. Provide additional guidance on what constitutes vulnerable consumers (based on Member States' experiences).

Propose a common approach to definition of vulnerable consumers in an implementing act, to include both socio-economic and energy vulnerability considerations, and ensure NRAs report more comprehensively on vulnerable consumer definitions and measures.

Recommendation 3. Explicitly define what energy poverty is and urge Member States to act to alleviate it, but without prescribing the metric to be used by Member States.

The Commission should develop a communication document or strategy (as is most appropriate) on their understanding of the energy poverty challenge, what is being done at the Member State level, and urge Member States to develop strategies. At this stage, we do not consider that the EC should adopt a specific expenditure-based metric, due to lack of harmonised data. However, the EC should harness the research using EU-SILC data to set out the challenge of energy poverty, and take on board recommendations to improve this survey.

The Commission should share practice on how different Member States have been developing energy poverty metrics. This would highlight types of metric and data required to support such a metric. A single metric should not be prescribed; a pragmatic approach would be for Member States to tailor metrics to the best available data, whilst looking to continually improve data in the future.

Recommendation 4. Develop a database of measures used by different Member States, relating to vulnerable consumer protection and energy poverty.

The Commission can play a strong role in information dissemination regarding effective and relevant measures. This study and its associated Member State reports, other research initiatives listed (Appendix IV), and the work of the (VCWG provide a useful starting point.

Recommendation 5. Support actions that promote the targeting of energy efficiency measures to address energy poverty.

We propose that more targeting of energy efficiency measures on low income households should be encouraged. Mechanisms could include the Energy Efficiency Directive, mandating a percentage of funding in this area to tackling energy poverty through energy efficiency refurbishments in low income households. The Commission could also ensure it allocates a higher share of EU funds to renovation programmes focused on fuel poor, low-income and vulnerable categories of people. These funds should also be targeted towards Member States in Central and Eastern Europe, and Southern Europe, where the problem is most entrenched.

Recommendation 6. Develop data reporting mechanisms that allow for improved indicators for measuring energy poverty.

We recommend, in line with other research initiatives, that an Energy Poverty Observatory is established that would help support the development of different indicators, and improve current proxy datasets. This would be to better understand the challenge, and assess effectiveness of strategies to tackle energy poverty. This observatory could also help facilitate best practice between Member States.

Recommendation 7. Introducing a stronger requirement in impact assessment guidelines to evaluate the impact of policies on vulnerable consumers, and the energy poor.

We recommend that while under revision, guidance is developed to reflect the need for policy appraisal to consider lower income households and other vulnerable groups.

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ACRONYMS

ACER	Agency for the Cooperation of Energy Regulators
AROPE	At risk of poverty or social exclusion
BPIE	Buildings Performance Institute Europe
CEER	Council of European Energy Regulators
CEF	Citizen's Energy Forum
ECCG	European Consumer Consultative Group
ECO	Energy Companies Obligation
ECRB	Energy Community Regulatory Board
EESC	European Economic and Social Committee
EPEE	European Fuel Poverty and Energy Efficiency
ERGEG	European Regulators Group for Electricity and Gas
ERRA	Energy Regulators Regional Association
ESCos	Energy Service Companies
EU ETS	European Emission Trading System
EU SILC	EU Survey on Income and Living Conditions
HBS	Household Budget Survey
NRA	National Regulatory Authority
ONPE	(French) National Observatory of Energy poverty
VCWG	Vulnerable Consumers Working Group

COUNTRY ABBREVIATIONS USED

MS code	MS Name
AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
ES	Spain
FI	Finland
FR	France
GR	Greece
HR	Croatia
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LV	Latvia
LU	Luxembourg
MT	Malta
NL	Netherlands
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SK	Slovakia
SI	Slovenia
UK	United Kingdom

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I. INTRODUCTION

This policy report from the INSIGHT_E consortium has been undertaken to assess how Member States define the issue of energy poverty and vulnerable consumers, and the measures that have been implemented to address these issues.

Energy poverty most commonly refers to the situation where individuals are not able to adequately heat (or provide necessary energy services) in their homes at affordable cost. The issue is characterised by three key drivers in combination or isolation – low incomes, poor thermal efficiency of buildings, and high energy costs. The risk to households of energy poverty will be a function of five factors (Preston et al, (2014)):

- The rate of energy price rises versus income growth
- Ability to access to cheaper energy prices
- Household energy needs
- Efficiency of energy use
- Policy interventions

From the Commission perspective, energy poverty is primarily assessed in the context of electricity and gas, which are subject to internal energy market legislation (EC 2010). This focus differentiates energy poverty from broader concepts encompassing all residential energy use and non-building energy services e.g. mobility.¹ However, this report tends to consider energy poverty as a broader concept, to include fuel poverty, and not necessarily to only cover energy markets.

Energy poverty is a critical issue. Based on current research, the problem is extensive, and in many countries severe. The EU Survey

¹ In this respect, the Commission tends to distinguish energy poverty as including electricity and gas only, while fuel poverty includes all household energy used in buildings.

on Income and Living Conditions (EU SILC) estimates that 54 million European citizens (10.8% of the EU population) were unable to keep their home adequately warm in 2012, with similar numbers being reported with regard to the late payment of utility bills or presence of poor housing conditions.² The functioning of energy markets can clearly have an impact on this situation, through ensuring consumer protection and safeguards, offering competitive tariffs (and access to them) and assisting in the efficient use of energy.

Recognising vulnerable consumers is therefore important. While the definition varies by Member State, it typically includes those individuals and households at risk of energy poverty, but also a broader group of consumers who may be at a disadvantage in the purchasing and use of energy in the electricity and gas retail markets.

Understanding and recognition of the issue of energy poverty in Europe is at an early stage, and has only been recognised explicitly in recent years in European legislation. Bourasovski et al. (2012) states that outside the UK, limited analysis has been undertaken of the problem across Member States to date.

The European Commission is taking an increasingly proactive role in highlighting the problems of risks of energy poverty, through introducing requirements in energy legislation to better understand the issues, through initiatives such as the Citizen's Energy Forum (CEF)³, and more recently through additional measures to protect vulnerable consumers announced in the Communication on the Energy Union Package.

² Energy Vulnerability Trends and Patterns in Europe: EVALUATE project policy brief no .1

³ Citizen's Energy Forum
http://ec.europa.eu/energy/gas_electricity/forum_citizen_energy_en.htm

To further consider the role of the European Commission and Member States in addressing the challenge posed by energy poverty, it is important that we have an improved understanding of how such issues are identified and addressed. This could help determine common responses at the European level, and the sharing of good practice between Member States in addressing this critical issue.

It is in this context that this study has been undertaken, and considers the following research questions:

1. How have different Member States defined issues of energy poverty and vulnerable consumers?
2. What different measures have Member States put in place to address the issues of energy poverty and vulnerable consumers?
3. Based on the above review, what are the similarities / differences across Member States with respect to recognition and definition of the issue, and policy measures implemented to address the issue?
4. What can the Commission do to address this issue across the European Community?

This policy report first describes, in section II, the ongoing efforts in Europe to protect vulnerable consumers and address energy poverty, through European legislation. In section III, the extent of the challenge is described, based on our current understanding of consumers vulnerable to and experiencing energy poverty.

The main research focus of the report is presented in section IV. This provides an overview of how Member States are addressing these challenges, and what measures are being introduced. Significant additional detail can be found in the Member State reports, provided as separate annexes to this report. A critical analysis of the impact and transferability of measures is also

provided. Section V concludes with key recommendations for the Commission and Member States in terms of actions that could be taken at the European and national level.

Box 1. What is meant by “energy poverty”?

Thomson (2014b) analysed the discourse on the terminology for fuel poverty and energy poverty over the last 13 years, where over 187 official, EU policy documents were assessed. Thomson found that “energy poverty” is the preferred terminology over “fuel poverty” being used in over 70% of the cases. However, the terms are also used interchangeably within the same context. The most recent legislative piece, namely the directive instructing Member States to define vulnerable consumers uses the term “energy poverty”, but Thomson concludes that as there is no guidance from the EU level, Member States are left unsure about how to proceed as far as categorizing vulnerable consumers much less having appropriate tools to measure the extent of the issue.

Another study (Grevisse and Brynart 2011) investigated how energy poverty is understood in Europe by looking at various indicators and aggravators of energy poverty. For the purposes of their study, they defined energy poverty as *The impossibility (or the difficulty) for a household to gain access to the energy it needs to ensure dignified living conditions at an affordable price from the point of view of its income*. In the restrictive context of heating, this means the impossibility of heating its home to an adequate level at an affordable cost.

However, Grevisse and Brynart (2011) point out that the definition requires a common understanding for dignified living conditions, adequate heating levels, and affordable costs, and that it is likely that these would differ between Member States. Nonetheless, the outcomes of energy poverty are the same, where households will forgo energy use, have arrears in energy accounts, and forgoing consumption in other areas, all of which have a chain reaction of consequences, e.g., impacts on health.

II. EU EFFORTS IN ADDRESSING ENERGY POVERTY

Energy poverty and the concept of vulnerable consumers have only recently been explicitly recognised in European legislation, and now require Member States to take action to address this issue. Under the third package of legislative proposals for common rules for the internal electricity and gas markets, adopted and entered into force in 2009, the Directives (2009/72/EC and 2009/73/EC) state that

Energy poverty is a growing problem in the Community. Member States which are affected and which have not yet done so should therefore develop national action plans or other appropriate frameworks to tackle energy poverty, aiming at decreasing the number of people suffering such situation. In any event, Member States should ensure the necessary energy supply for vulnerable customers. In doing so, an integrated approach, such as in the framework of social policy, could be used and measures could include social policies or energy efficiency improvements for housing. At the very least, this Directive should allow national policies in favour of vulnerable customers (2009/72/EC (53)).

These provisions acknowledge the issue of energy poverty, and present the protection of vulnerable consumers as a minimum requirement to combat it. However, no guidance is given regarding what the content of the recommended “integrated approach” to approach vulnerable consumer protection should be.

Under these directives, in recognising the problem of energy poverty, Member States are

required to define the concept of vulnerable customers, and to ensure there are adequate safeguards to protect them. However, guidance regarding how to integrate this definition and approaches to addressing energy poverty is not clear.

In 2007, the European Commission established the Citizen’s Energy Forum, the aim of which is the implementation of competitive, energy-efficient and fair retail markets for consumers, as foreseen under the Third Energy Package. A key working group established in 2011 is the Vulnerable Consumer Working Group (VCWG) gathering representatives from consumers, NGOs, regulators and relevant public bodies and industry. The VCWG is chaired by the European Commission and involves staff from DG Energy and DG Health⁴. Its objectives are to -

- Establish a qualitative and quantitative mapping of various aspects of vulnerability and measures which can contribute to addressing the issue;
- Provide recommendations for defining vulnerable consumers in the energy sector, based on current state of play in Member States;
- Highlight good (national) practices and appropriate non-policy solutions with long-term potential to better target vulnerability.

Such activities are ultimately to “help reduce the number of vulnerable consumers, including those in energy poverty, and to prevent consumers from falling into energy poverty, where possible” (VCWG 2013).

This study therefore has very close synergies with the aims of the VCWG, and as such is an important support activity.

4

http://ec.europa.eu/energy/sites/ener/files/documents/vcwg_tor_final.pdf

II.A. European legislation

The key Directives which provide the framework for identifying vulnerable consumers, and addressing this vulnerability are Directives concerning common rules for the internal market in natural gas (2009/73/EC) and electricity (2009/72/EC).

For electricity, article 3 (7 and 8) is of most relevance.⁵ Point 7 states that

Member States shall take appropriate measures to protect final customers, and shall, in particular, ensure that there are adequate safeguards to protect vulnerable customers. In this context, each Member State shall define the concept of vulnerable customers which may refer to energy poverty and, inter alia, to the prohibition of disconnection of electricity to such customers in critical times. Member States shall ensure that rights and obligations linked to vulnerable customers are applied. In particular, they shall take measures to protect final customers in remote areas.

In summary, there is a need for Member States to provide a definition of vulnerable consumers so that adequate safeguards can be applied. Point 8 states that

Member States shall take appropriate measures, such as formulating national energy action plans, providing benefits in social security systems to ensure the necessary electricity supply to vulnerable customers, or providing for support for energy efficiency improvements,

to address energy poverty where identified, including in the broader context of poverty. Such measures shall not impede the effective opening of the market set out in Article 33 or market functioning and shall be notified to the Commission, where relevant, in accordance with the provisions of paragraph 15 of this Article. Such notification may also include measures taken within the general social security system.

This states the need for Member States to consider appropriate measures to address energy poverty, as it relates to electricity and gas consumers – although the type of measures will be determined by Member States themselves. Energy efficiency improvements and social security measures are equally presented as possible policy areas, while National Action Plans rather appear as implementing tools. It is specified that no measures should impede the opening of electricity and gas markets.

Concerning these provisions, the Commission makes a number of important points concerning their implementation in a working paper (EC 2010). The first is that Member States should define vulnerable consumers based on their own particular situations, although must ensure a high degree of protection. In turn, this means that the Commission does not currently deem a European definition of energy poverty or of vulnerable customers appropriate. Secondly, Member States should focus on longer term solutions (e.g. building retrofit), and not only short term relief (e.g. bill support).

Concerning the definition, there are a number of reasons why Member State subsidiarity in this area is considered important – different policy agendas in this area, concerning what the issue is and how it should be addressed,

⁵ For gas, article 3 (3&4) states the same requirements as for electricity.

existing policies and measures in place and different national situations with regard to energy markets, energy use and building type. Conversely, arguments for a centralised definition focus on ensuring the problem is addressed effectively across the Europe.

The Energy Community Ministerial Council endorsed a proposal for a regional definition of vulnerable customers for Contracting Parties in October 2013 (Energy Community, 2015). The proposed definition for a socially vulnerable customer in the electricity sector:

- Uses energy for supplying his/her permanent housing
- Does not exceed the maximum energy consumption per person: when defining electricity consumption level per person, Contracting Parties shall consider total consumption of up to 200 kWh/month for a family with up to 4 members and reflects seasonality
- Belongs to a category of citizens with lowest income: for the definition of low income, beside the income of all available assets shall be taken into account
- Have her/his electricity consumption supplied through single-phase meter with a connection not exceeding maximum power. When defining power for a mono phase meter Contracting Parties shall consider power of up to 16 Amperes.

Furthermore, "the definition shall not include more than a minority of population. Market prices of the electricity should be cost reflective and consumption of vulnerable customers should be financed by social allowances."

The proposed definition for a socially vulnerable customer in the gas sector is as above, except that consumption levels under the second point are *total consumption of up to 70 cubic meters/month*.

Other European institutions have also considered the issue of energy poverty, and the role of the European Commission. In their opinion *For coordinated European measures to prevent and combat energy poverty*, the European Economic and Social Committee (EESC 2013), a consultative body of the EU, argue for common definitions and indicators.

The EESC considers it essential to establish common European indices and indicators for energy poverty that include the vulnerability aspect, in order to identify and analyse the causes more accurately, to go beyond merely acknowledging the symptoms and to develop a European strategy for tackling the problem more effectively. The EESC suggests that the definition suggested in opinion TEN/420, "the difficulty or inability to ensure adequate heating in the dwelling and to have access to other essential energy services at a reasonable price", should form a basis to be further developed (taking account of the universal right of access to energy as an essential commodity) by the European poverty observatory it would like to establish. The latter could determine common European indices and indicators which would serve as parameters for the Member States in defining energy poverty so that their national characteristics are taken into account. EUROSTAT and the national statistics institutes should adopt standard methodologies to quantify the problem at national European levels in order to harmonise the existing statistics more effectively.

One can notice that while the EU directives narrow the scope of energy poverty down to the residential use of energy (mainly

heating), the EESC mentions “other essential energy services” which may include mobility aspects.

Another body, the European Consumer Consultative Group, a European Commission forum for consumer organisations, released an opinion on consumers and vulnerability (ECCG 2013). Concerning energy, it states that

Member States should be encouraged to implement strategies that reflect the different needs among different groups of consumers in order to make it easier for all consumers to make energy-efficient choices. It is essential that policy focuses on the most long term and sustainable solution to fuel poverty, namely radical improvement to the energy efficiency standards of housing, particularly that occupied by low income and vulnerable households.

A number of other directives also have relevance for addressing issues of energy poverty and vulnerable consumers. Article 7 of Directive 2012/27/EU (Energy Efficiency) states that *Member States shall set up an energy efficiency obligation scheme*. Article 7(7)(a) states that the scheme may

include requirements with a social aim in the saving obligations they impose, including by requiring a share of energy efficiency measures to be implemented as a priority in households affected by energy poverty or in social housing.

However, without a precise definition of energy poverty, this is difficult to implement.

II.B. Current status of action

The focus on the regulated markets means that it is primarily the responsibility of the National Regulatory Authorities (or NRAs) to ensure that the requirements of the directives (under the third energy package) are implemented. The annual reporting under the directives by different NRAs highlights the state of play with implementing the provisions of the legislation.

Both the Agency for the Cooperation of Energy Regulators (ACER) and the Council of European Energy Regulators (CEER) provide important functions in monitoring how different provisions have been implemented across Member States.⁶

CEER has reviewed the status of implementation of the Third Energy Package, particularly as to how they relate to consumers (CEER 2012). The review found that in most CEER member countries vulnerable customers were protected through a combination of energy specific protection measures and social security benefits. Furthermore, 17 out of 26 Member States stated that a concept of vulnerable customers existed in energy law, other law, or a combination of both.⁷

According to the CEER report, vulnerable consumers seem to be mainly described around the terms of energy affordability. Several types of criteria were used to classify

⁶ National reports from NRAs can be found at the CEER webpage - http://www.ceer.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/NATIONAL_REPORTS/

⁷ An earlier review by ERGEG (2009) suggested that the term vulnerable consumers was not widely used, in fact only in eight Member States, namely Belgium, Bulgaria, Great Britain, Greece, Hungary, Ireland, Italy and Slovenia.

consumers as being part of a group that was at risk of having problems paying energy bills. These included the following: 1) income thresholds (Greece, Malta and Romania); 2) share of income required to meet adequate fuel requirements (UK); 3) consumer characteristics, e.g., age, illness, etc. (Belgium, Romania, Slovenia and Spain).

In a recent annual report by ACER/CEER (2014) on internal energy markets, 13 out of 26 Member States explicitly define the concept of vulnerable consumers, and in another 12 it is implicitly defined. Only Latvia (and Norway) stated that a definition was not yet available. The CEER review does not enable to say whether these protection mechanisms explicitly target energy poverty.

Concerning measures introduced, the most popular is protection from disconnection in the event of non-payment. Social tariffs and benefits are also important measures to protect vulnerable consumers. Two specific types of measures that are not common include specific energy costs and deferred payments.

While useful to gain a broad overview, information on measures from the CEER database is from the NRA perspective and, therefore, does not necessarily consider the wider measures being taken by federal or regional government, or indeed in civic society, both in terms of energy policy and wider social policy.

The European Commission's Communication on the Energy Union Package, released on February 25th, 2015, includes a paragraph on protecting vulnerable consumers. Interestingly, this paragraph starts with the mention of energy poverty. Recalling its impact on living conditions and health, it also mentions its causes, presented as "a combination of low income and general poverty conditions, inefficient homes and a

housing tenure system that fails to encourage energy efficiency". To this combination of factors, only a "combination of measures" can provide a relevant answer. The subsidiarity principle is restated, with action needed at different levels of governance. Even though this paves the way for an integrated approach of energy poverty, the focus is clearly on social measures.

According to the Energy Union Communication, (EC 2015, p. 12), the protection of vulnerable consumers remains the main way to operationalise the fight against energy poverty:

When phasing out regulated prices, Member States need to propose a mechanism to protect vulnerable consumers, which could preferably be provided through the general welfare system. If provided through the energy market, it could be implemented through schemes such as a solidarity tariff or as a discount on energy bills. The cost of such schemes needs to be covered by non-eligible consumers collectively. Hence, it is important that such a system is well targeted to keep overall costs low and to limit the distortions deriving from regulated prices (e.g., not increase further tariff deficits in Member States).

The priority given to measures through the welfare system seems to be a way to remind Member States of their obligations. Building on the previous safeguards that any vulnerable consumer protection measure shall not hamper the opening of the gas and electricity market, the context of market liberalisation is clearly set, and the specific mention of solidarity tariffs and discounts on energy bills appears as a balance of the phasing-out of regulated tariffs. This also explains the

insistence on the targeting. However, this disposition calls for the construction of specific metrics to make the targeting applicable.

This report attempts to broaden the current understanding by reviewing actions in different Member States, from different perspectives (government, regulator, utilities, civic society), and in relation to addressing energy poverty, not only protection of vulnerable consumers. For example, while most NRAs have reported that some sort of definition of vulnerable consumers is in place, other Member States (France, Cyprus, the United Kingdom and Ireland) also explicitly consider the issue of energy poverty (EESC 2013). Some countries have broader energy poverty policies and strategies that go beyond the regulated markets, under the remits of and implemented by a range of different authorities and agencies.

Member State flexibility concerning how vulnerable consumers (and energy poverty) should be defined and measures implemented needs to be better understood, and that is what the review undertaken in this study seeks to do.

III. VULNERABLE CONSUMERS AND ENERGY POVERTY IN THE EU

This section describes our understanding of the issues of energy poverty across the EU and gives an overview of key Europe-wide research initiatives, many of which have attempted to quantify energy poverty and vulnerable consumers.

In view of recent economic turmoil across the EU, negatively impacting on employment and income, and the historical increases in energy prices (EESC 2010, 2013), risk of energy poverty is on the increase. Understanding the extent of the problem and differences (and similarities) across Member States is crucial in order to ensure vulnerable individuals and households can be protected.

A range of research has been undertaken at Member State level on these issues, and these are described in section IV. In this section, to gain an EU wide understanding of the issues, we focus on the key European research initiatives at the EU level, which are summarised in Appendix IV. Key European stakeholders, including networks, organisations or regulatory bodies, are also described, including their designation, activities as well as the key interest in energy poverty. A summary overview is provided in Appendix III.

III.A. Indicators for EU energy poverty analysis

Estimating the extent of energy poverty depends on the definition given. Different definitions exist although there is no single agreed definition at the EU level. In the absence of a specific definition, general indicators can be used to provide some

understanding of the status of energy poverty. Eurostat collects data about the population at-risk-for-poverty (AROPE), which is defined as households with an income of 60% of the median national income. From this definition, different types of consumer groups can be identified including disabled, children and the elderly, who may be particularly vulnerable to energy poverty. However, energy poverty and associated vulnerability arise from a variety and combination of factors, and therefore income alone does not provide the whole picture.

Several studies have attempted to estimate the prevalence of energy poverty across Europe despite an absence of a common definition or methodology. The primary contributing factors to energy poverty have been found to be a combination of low income levels, high energy prices and low levels of energy efficiency (particularly in buildings). These factors can be seen as the drivers of energy poverty.

A variety of factors contribute to the phenomenon of energy poverty resulting in households in energy poverty or vulnerable to energy poverty. The three main areas, as depicted in Figure 1, are a combination of high energy bills, low income and poor energy efficiency of the building envelope and corroborated in several studies (Thomson and Snell 2013, EPEE 2009, Schweizer-Ries 2009, Bouzarovski 2011, ACHIEVE 2014, EC-LINC 2015, ELIH-MED 2015, BPIE 2014, Grevisse and Brynart 2011).

The overlapping regions highlight areas where indicators for measuring these aspects of energy poverty reside. For example, the type of heating system and share of central heating will influence the amount of the energy bill and the energy efficiency of the building, while a high level of energy consumption will result in higher energy bills, which will negatively

affect households with lower income levels. The degree of energy poverty experienced by

households will be incumbent depending on the number of factors affecting the household.

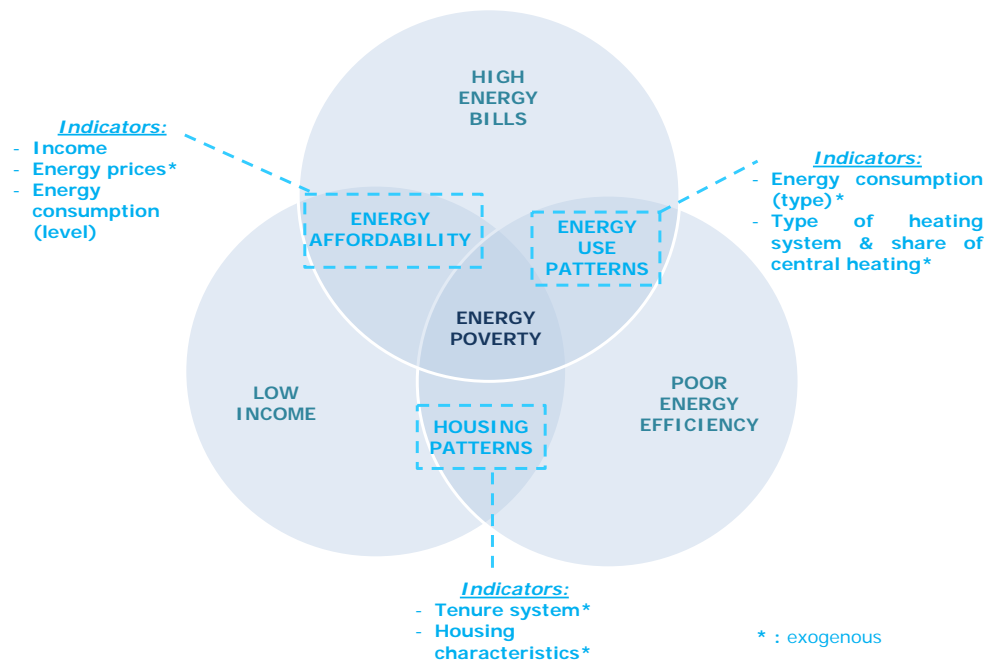


Figure 1: Drivers of energy poverty and key indicators

In the absence of a single metric for energy poverty, several proxy indicators have been used across research initiatives to assess the situation and draw conclusions about the status of energy poverty. However, none of these metrics stand alone to measure energy poverty since they result from various drivers, but taken together a picture of energy poverty begins to form.

Assessment is typically performed using Eurostats and supplemented with local statistics within the projects. First, a description of the common proxy indicators of energy poverty and how they pertain across Europe is provided. These common proxy indicators include income, energy consumption based on energy carriers, energy services and building types, energy prices, statistics of well-being and material/housing deprivation, and

further statistics about housing. This is followed by a review of ten specific European research projects and their application of these common indicators to estimate and/or address energy poverty.

III.A.1. Income

Income is a vital indicator when looking at energy poverty, as it is also the key indicator to assess the share of the population at risk of poverty (Eurostat, 2012). In 2012, the highest share of populations at risk of poverty were found in the newer Member States (Romania (40-50%), Hungary, Croatia, Cyprus, Latvia, Lithuania (30-40%) and those hit by recent economic turmoil (Ireland, Greece (30-40%)). This is followed by countries with a 20-30% share in Poland, Italy, Malta, Spain, Portugal, Estonia, Slovakia, Belgium and the United

Kingdom. Figure 2 shows the regional distribution of the share of the population at risk for poverty, where it can be clearly seen that the Southern and Eastern regions of Europe are at higher risk of poverty.



Figure 2: Geographical mapping of share of population at risk for poverty in the EU (own representation of Eurostat data 2012)

III.A.2. Energy consumption

Another important indicator is energy consumption per household or capita. Higher consumption (and therefore expenditure) may increase household vulnerability to price increases. However, the drivers of consumption are complex, and may be due to climatic factors, income drivers (affordability (due to higher incomes or lower energy prices) and standard of living) and energy efficiency

of buildings and appliances. The type of energy used is also important as it can be indicative of heating systems, and applicability of measures for protecting vulnerable consumers, and tackling energy poverty.

Figure 3 shows the fuel type split and the magnitude of the overall energy consumed in the residential sector in each Member State. On a per capita basis, Scandinavian countries, Luxembourg, Austria and Estonia have the highest consumption levels (between 30 - 42 GJ/capita). Countries such as Malta used the least amount of energy per capita (7.8 GJ/capita), with other low consumers including Portugal, Spain, Bulgaria and Slovakia, where the drivers of this low demand vary from ability to afford to consume to warmer climatic conditions. In terms of the electricity and gas markets, gas provides a high share (>50%) of household consumption in Netherlands, the UK, Italy, Hungary and Slovakia. High electricity shares in the mix (>30%) can be found in Malta, Sweden, Spain, Cyprus, Bulgaria, Finland and Croatia. Regarding the other energy carriers, Latvia, Slovenia, Romania, Lithuania and Austria have the highest dependence on renewables, while Denmark is dependent on derived heat, and Luxembourg, Greece, Ireland and Belgium on petroleum products.

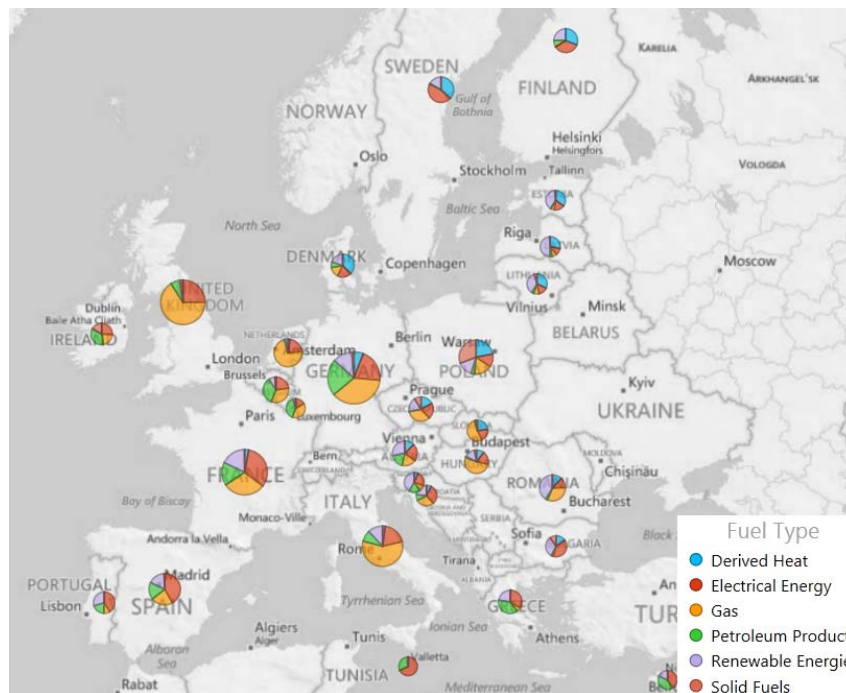


Figure 3: Geographical mapping of residential energy consumption by fuel type in the EU (own representation of Eurostat data 2012)

III.A.3. Energy prices

Another important indicator that influences affordability of energy and the risk of energy poverty is the price of energy. Many factors influence price of energy, including whether prices are regulated / competitive, levels of taxation, and costs of supply. For vulnerability, a key issue is how these prices change over time, particularly in dynamic markets, and the impacts on different groups in society.

It is the change in price of energy combined with consumption needs that can indicate a risk of energy poverty. There are Eurostat statistics that do show difference between Member States, including the contribution of tax in the energy price. Lowest taxes for electricity and gas are found in the UK, while Sweden, Denmark and Germany have the highest taxes for gas and electricity, respectively. This is useful information in

understanding the leverage Governments have in reducing or increasing prices.

III.A.4. Tenure status and other housing characteristic influences

Tackling the challenges of energy poverty also require an understanding of tenure status (Figure 4) and dwelling type (Figure 5). Tenure status can impact the implementation of measures; renting can pose problems for tenants in investing in measures, particularly in the private sector. Conversely, tenants living in social housing could benefit from larger scale building retrofit efforts. Keeping track of this type of indicator highlights the importance of implementing measures to address these issues (or combination of issues).

In addition to climate, the type of dwelling will also influence the energy demand of the building, where detached housing will have a

greater energy demand than semi-detached houses or flats. It can also have an impact on the implementation of retrofit programmes and other measures associated with addressing energy use. A further factor influencing overall household energy demand is the type of heating system employed. The distribution of the types of heating systems as well as the share of central heating (individual, collective and district heating systems together)⁸ is given in Figure 6. Further research is required in each Member State to track and link building types with heating system types. This information is fundamental for addressing especially space heating demands and ensuring efficient use of energy in this arena through appropriate measures.

In some instances, a correlation can be found between the share of central heating systems and the estimated level of poverty as shown in Figure 7. Higher shares of central heating systems are generally correlated to lower levels of energy poverty (lower right area in Figure 7: Comparison of estimates of energy poverty and share of population with central heating systems (Source: own elaboration based on ENTRANZE 2015)).

The only Member State with a low share of central heating (left side of the chart) and at the same time a low level of energy poverty is Denmark, where the average income per capita is one of the highest and the inability to keep the home adequately warm is one of the lowest. For several other Member States, such as Portugal, Cyprus and Romania, there is a strong correlation between the lack of central heating and higher levels of energy poverty.

The importance of the above indicators for understanding the challenge across different

building type, heating system, fuel use and tenure type is critical. Even if correlation does not equate to causation, improved understanding will enable more effective targeting of measures.

⁸ According to the aggregation of the ENTRANZE project, individual boiler (e.g. 20 kW) + collective systems (centralised boiler for multi-apartments e.g. 200 kW) + district heating are all aggregated under the category "central". (ENTRANZE 2015)

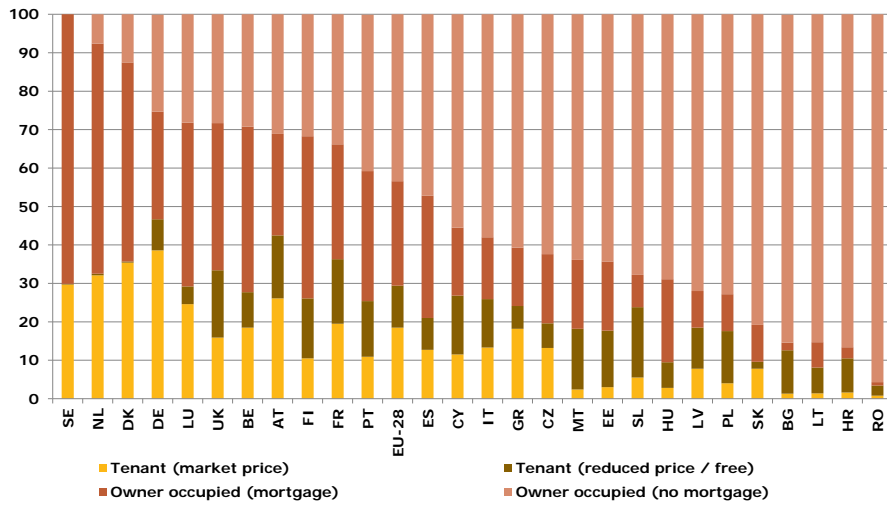


Figure 4: Tenure Status (Eurostat 2012)

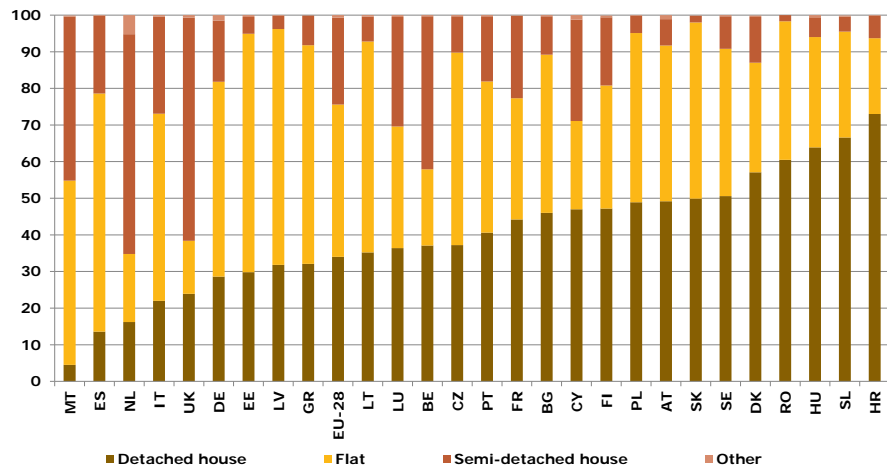


Figure 5: Distribution of population by dwelling type (Eurostat 2012)

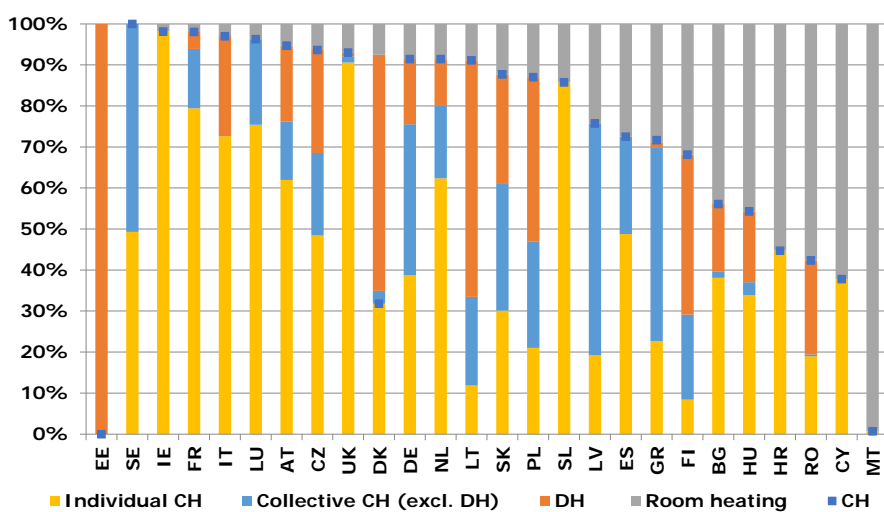


Figure 6: Share of households by heating system and share of households with central heating in the EU (Source: own elaboration based on ENTRANZE 2015)

It is also important to be aware of seasonal heating needs, and the adequacy of household systems. From the Winter of 2002/2003 to the Winter of 2010/2011, Malta, Portugal, Spain, Cyprus and Belgium had the highest seasonal variation in mortality (Excess Winter Deaths Index) in Europe (Fowler, et al., 2014), thus highlighting the need to further investigate the correlation between heating system (indoor temperature) and energy poverty (mortality rate in the cold season), even in Member States with milder winter temperature (and with inadequate heating systems).

Figure 7 shows the different position of the Member States with high levels of central heating systems along the vertical axis, which can also be read in terms of income per capita. Scandinavian and Central European Member States are generally below the red line (lower energy poverty level estimates), while South-Eastern European Member States

are above the red line (higher energy poverty level estimates). This highlights the important social dimension of the problem, related to income levels and energy affordability.

However, in the case of Romania (as well as, for example, Bulgaria, Poland and Hungary) the share of district heating is relevant where the penetration of the remaining central heating systems is relatively low especially in the urban areas, while the number of dwellings heated by room systems gets higher, and so do the estimated levels of energy poverty. However, a central heating system does not automatically mean that maximum efficiency is achieved. For example, the efficiency of district heating networks in Romania is very low (lower than 50%), while covering over 1.6 million dwellings, mostly blocks of flats where customers often cannot adjust the heating level.

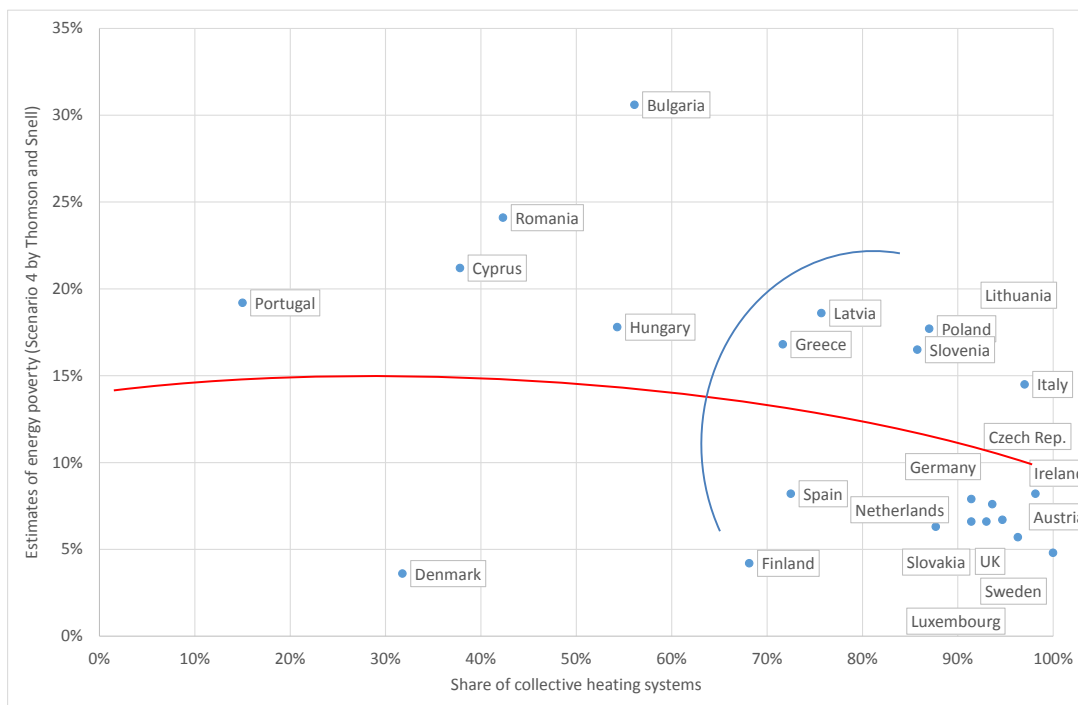


Figure 7: Comparison of estimates of energy poverty and share of population with central heating systems (Source: own elaboration based on ENTRANZE 2015)

III.A.5. Proxy indicators of energy poverty: Well-being and material deprivation

Figure 8 shows a range of indicators used as proxies for energy poverty, representing well-being of households across energy parameters. These include living in dwellings with leakages and damp walls, having arrears in accounts, ability to keep the home comfortably cool, and the ability to keep the home adequately warm, which are qualitative statistics collected through the Eurostat

Survey on Income and Living Conditions (EU-SILC).

These proxy indicators are currently the only indicators available to use and compare the status of energy poverty across the EU, and therefore despite their weaknesses (see Thomson and Snell 2013), provide an important basis. Various studies have used these to develop a composite index to estimate the state of energy poverty in each of the Member States (Thomson and Snell 2013, Bouzarovski 2011, BPIE 2014) and are described in Section 0.

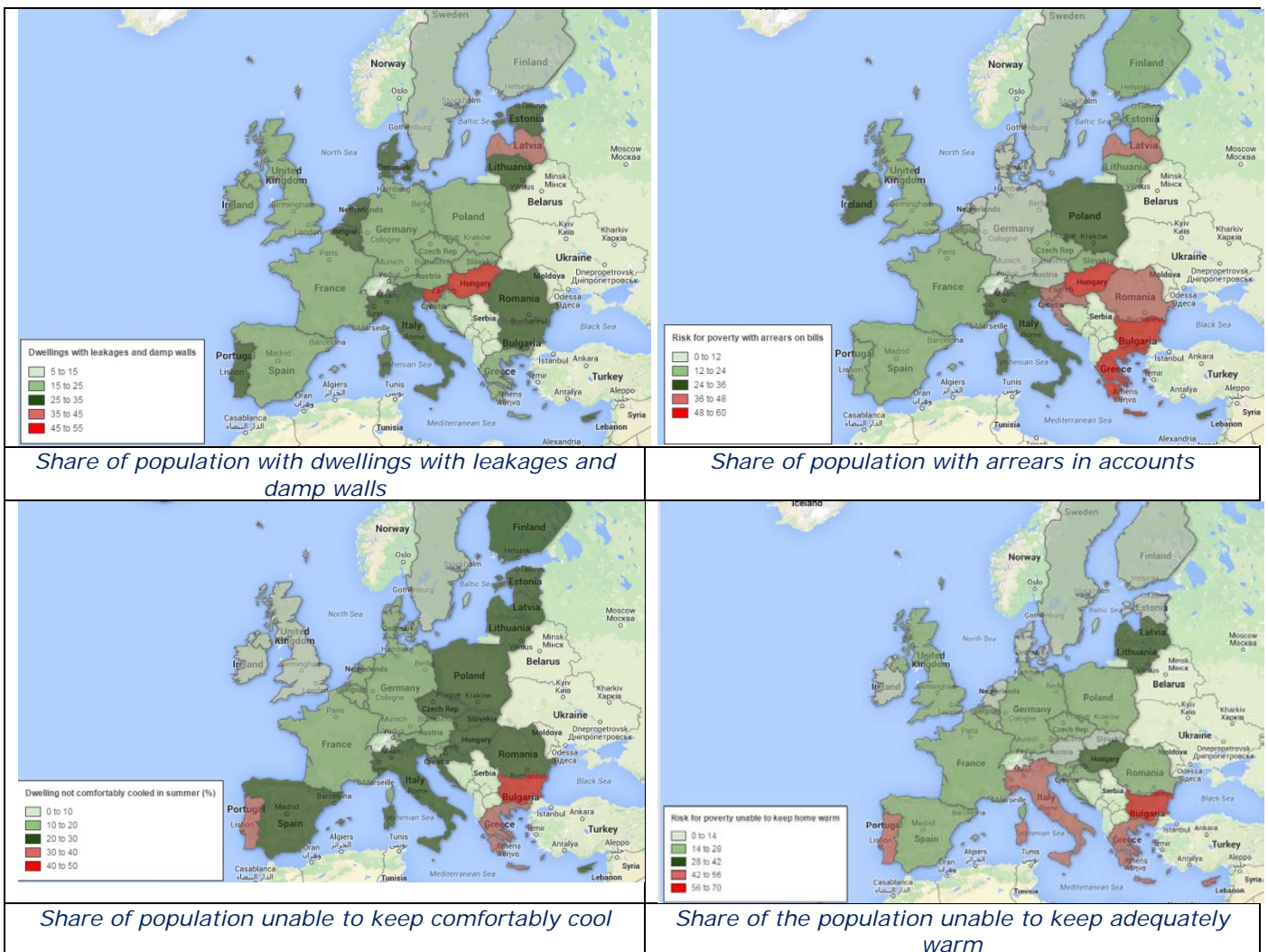


Figure 8: Geographical mapping depicting the share of the at risk of poverty population for energy poverty proxy indicators across the EU (own representation of EU SILC data 2012)

Dwellings with leakages and damp walls provide some indication of building quality, although this can of course not be directly translated to energy efficiency. Most affected are Hungary and Slovenia (45-55%), followed by the Baltic States, Romania, Bulgaria, and selected other Member States.

The Member States with the highest share of population with arrears in accounts (48-60%) include Hungary, Bulgaria and Greece, followed by Cyprus, Latvia, Romania, Croatia and Slovenia (36-48%). This indicator provides some insights into energy affordability.

Arguably, the most relevant indicator is households unable to keep the home adequately warm. Highest reporting is from Bulgaria (46%), followed by Lithuania, Cyprus (30-35%), Portugal, Greece, Malta and Italy (20-30%). Interestingly, a number of countries with milder climates cite this as an issue. There appear to be a number of reasons for this; firstly, building fabric is often not adequate for retaining warmth in colder months. Secondly, heating systems tend to be inadequate with very low levels of central heating systems. Thirdly, many of these countries have experienced strong economic downturns, and spending on heating is likely to have been more restricted. For example, Bouzarovski (2011) showed that in Mediterranean countries, the most common causes included a lack of adequate heating systems, poor quality of residential buildings and inefficient thermal insulation.

Although not considered by other research studies (since the indicator was first introduced in 2012), we also think that the cooling related indicator provided by EU-SILC is relevant. This relates to the use of energy for cooling, as opposed to heating, and is relevant to the issue of energy poverty. Southern European Countries have been

experiencing frequent heat wave events in the summer time which seem to be responsible for mortality rate growth among low income households and vulnerable people. It was estimated that 80,000 people died in the 2003 summer in Europe, one fourth in Italy, highlighting that a more comprehensive vision of the issue should drive the design of future measures towards an effective reduction of fuel poverty related issues (Fowler et al, 2014).

The EU-SILC survey asks respondents about whether a dwelling is not comfortably cooled in summer. Bulgaria is the country with the highest share of dwelling not comfortably cooled in summer (40-50%), followed by Greece and Portugal with 30-40% of dwellings.

III.B. EU research initiatives on energy poverty

A range of European research initiatives have assessed energy poverty, some including estimates of the problem using the above described indicators, and types of measures to address the issue. Detailed descriptions of each of the reviewed initiatives are provided in Appendix IV while this section focuses on providing a comparative overview of the European research initiatives and summarising the recommendations arising out of the studies.

Eleven research initiatives were reviewed to identify the objectives, methodology and the key results. Across the studies, there is a strong focus on energy efficiency in low income households as well as identifying financial mechanisms to ensure implementation of energy efficiency measures.

While some research initiatives endeavoured to estimate the extent of energy poverty

across Europe, the majority focused on practical action to address improving the energy efficiency of low-income households in order to reduce the household energy expenditure either through low-cost measures or energy refurbishments in buildings.

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2

Policy Report

Table 1: Overview of European energy poverty research initiatives

Project	Country/ Geographic focus	Brief description	Methodology /Outputs	Key results
ACHIEVE (Action in low-income Households to Improve energy efficiency through Visits and Energy diagnosis)	Bulgaria, France, Germany, Slovenia, UK	Energy consultations, energy efficiency in appliances and behaviour, Information and awareness; Training energy advisers, consultations in 1900 households with the aim of reducing energy use and costs through energy efficiency, awareness raising and training.	Course materials to train energy savings advisors to perform energy checks in low-income households.	On average, over 140€ and 300kg CO ₂ savings per household.
BPIE (Building Performance Institute of Europe)	EU-28	Report (Alleviating fuel poverty in the EU) estimating the extent of fuel poverty in the EU-28 with recommendations for alleviating energy poverty, especially regarding energy efficiency in buildings.	Financial solutions to supporting fuel poverty measures in fuel poor households.	Estimate about a quarter of EU population is at risk for energy poverty (50-128 million people). Recommendations include publicly funded finance schemes and regulatory mechanisms targeted at improving the energy efficiency performance of the building envelope.
EC-LINC (Energy check in low-income households)	Austria, Belgium, Germany, Hungary, United Kingdom	A European project providing information and support to households in fuel poverty and training long-term unemployed to become energy advisors to low-income households, who will save energy and water with no and low cost measures; energy consultations, energy efficiency in appliances and behaviour, information and awareness.	Course materials to train energy savings advisors to perform energy checks in low-income households; Status quo country reports prior to consultations.	Energy consultations and energy efficiency interventions resulted in savings of around 35-228€ per households.
ELIH-MED (Energy efficiency in Low-income housing in the Mediterranean)	Italy, Spain, France, Malta, Greece, Cyprus, Slovenia	This project brought together partners from 7 countries to improve energy efficiency and promote energy savings in low income housing in the MED area; Analysing energy efficiency policies, pilot projects for retrofitting representative low-income dwellings in each partner country; assessing innovative financing solutions.	Building typologies; Financial mechanisms; Smart meters; Potential energy savings; Policy recommendations.	Identification of barriers impeding energy efficiency improvements in buildings; Key strategic areas to ensuring achieving EU 2020 energy efficiency in buildings targets (territorial and financial governance, competitiveness, economic activities and employment; market activation; smart energy management systems and services).

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Project	Country/ Geographic focus	Brief description	Methodology /Outputs	Key results
Energy Cities	Energy Cities has members active in the following Member States: IE, UK, DK, SE, FI, LV, Ukraine, BG, GR, IT, FR, PT, DE, NL, CZ, SK, SI, RO, CY, LT, and ES.	A network of cities in Europe focussing on addressing various energy issues on the local level; locally led energy transition.	Developing local strategies to provide sustainable solutions to eradicate the cause of energy poverty: lack of insulation, low efficient heating systems and peri-urban sprawl. Ensuring social issues are part of the energy transition.	Promotion of adoption of local fuel poverty action plans.
Energy City	Budapest, Prague, Munich, Bologna, Treviso, Ludwigsburg, Velenje	The objective is to contribute to a reduction in energy consumption and CO ₂ emissions on a local level across Central Europe with a focus on energy efficiency in buildings; Reducing energy consumption and CO ₂ emissions in cities across Central Europe: Supporting the use of renewable energy sources and increasing energy efficiency.	Remote sensing in study cities to determine heating demands; urban energy models; CO ₂ and energy consumption in study cities.	Used a geographical analysis to estimate the level of fuel poverty in each of the cities based on the real estate prices, average income levels and estimated energy demand for space heating. All cities were assessed using the same criteria: low income, high energy prices, energy performance of buildings.
EPEE (European fuel Poverty and Energy Efficiency)	Belgium, France, Italy, Spain, UK	Retrofitting of old buildings for low-income tenants with a focus on identifying the most effective measures for the national context and highlighting fuel poverty as a priority in policy; Qualify and Quantify energy poverty; Finding mechanisms to address climate change and reducing fuel poverty through retrofitting buildings.	Evaluation of types of existing mechanisms (legislative, financial, technical, etc.), stakeholders, best practice; status in different countries.	Recommended a "common definition, a legislative framework, a consistent diagnosis, a fuel poverty special interest group"
EU Fuel Poverty Network - Thomson and Snell	Europe	Online information portal for researchers of EU fuel poverty to raise awareness and increase dialogue about fuel poverty in the EU; Developing methodologies to assess energy poverty.	Quantification of energy poverty across Europe; rapid review evaluation tools.	Provides a good summary of the discourse of defining energy poverty in Europe; developed a tool for a rapid estimation of fuel poverty.

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Project	Country/ Geographic focus	Brief description	Methodology /Outputs	Key results
EVALUATE (Energy Vulnerability and Urban Transitions)	Post-communist states of Eastern and Central Europe - 8 urban districts in Gdańsk (Poland), Prague (Czech Republic), Budapest (Hungary) and Skopje (Republic of Macedonia)	Study to investigate a shift in the paradigm to address the underlying causes of domestic energy deprivation and "to investigate the manner in which urban institutional structure, build tissues and everyday practices shape energy vulnerability at a variety of geographical scales".	An investigation how urban institutional structures, built environment and behavioural practices influence energy vulnerability at various geographical scales.	Ongoing study is the first systematic evaluation of the social and spatial dimensions of energy vulnerability in relation to the post-communist city.
FinSH (Financial and Support Instruments for Fuel Poverty in Social Housing)	France, Italy, Germany, UK, Poland	Development of financial and support measures for social housing providers to support social housing tenants.	Energy efficiency instead of energy poverty guidelines for sustainable reduction of energy costs in lower income households: - Case studies of energy refurbishments and low-threshold offers by country; Energy efficiency instead of energy poverty: barriers and points of departure from an environmental psychology perspective; Innovative financial measures to support energy refurbishments.	Due to the different circumstances and policy towards social housing in each of the countries, difficult to provide unified solutions to energy poverty, but energy efficient homes are a strong way to alleviate energy bills for all households.
ReRisk (Regional at Risk of Energy Poverty (ReRisk of the ESPON 2013 Programme))	Europe	This project looked at the effects of rising energy prices on regional competitiveness across Europe, which includes assessing the impacts of energy prices on economies and societies as well as resilience in the face of increasing prices using an "energy vulnerability index"	The methodology included looking at industrial competitiveness and employment, dependence on motorised transport, and the main causes of poverty. Regions were clustered by similarities and then long-term developments were analysed in several scenarios. The following five factors are considered significant in identifying zones at risk of energy poverty: regional economies, low levels of household income, role and dependence on transport, regions with extreme temperatures, potential for generating energy from renewable energy.	This research initiative advocates strongly for support to regionally vulnerable regions to deal with increasing energy prices and the related challenges, such as increasing associated costs for travel and reduced revenue from tourism. Coordination of policies on local, regional, national and EU level to ensure energy efficiency measures reach households and industry.

In terms of understanding energy poverty at the EU level, differences are found in the terminology used. While energy poverty and fuel poverty are used interchangeably, sometimes the term energy poverty is understood to encompass broader fuel types, while fuel poverty is specific to heating requirements. Stronger guidance has been called for in several of the research initiatives from the EU policy makers to assist Member States in

defining energy poverty within their specific context (BPIE 2014, EPEE 2009, EVALUATE 2015, Energy Cities 2015, Thomson and Snell 2013). This goes beyond the wording for the definition, but includes describing the metrics required to measure and monitor the status of energy poverty in the Member States.

Table 2 lists the terminology and definition used to understand energy poverty in the context of each research initiative.

Table 2: Definitions of energy/fuel poverty used in EU-wide research initiatives

Project	Definitions
ACHIEVE	Fuel poverty. A fuel poor household is one that has a perceived difficulty or sometimes inability, to be able to afford its basic energy needs. Households in fuel poverty have energy costs, which are excessive, compared to overall household income.
BPIE	Fuel poverty. Study discusses different definitions used, but does not specify one specific one for the understanding of the study.
EC-LINC	Fuel poverty. A fuel poor household is one that cannot afford to keep adequately warm at reasonable cost, where acknowledgement is made that this definition may vary by country. This is generally defined as 21 degrees C in the living room and 18 degrees C in the other occupied rooms – the temperatures recommended by the World Health Organization.
ELIH-MED	Energy poverty. Although this has a focus on low-income housing so no specific definition is provided.
Energy Cities	Fuel poverty. Described as a result of a variety of factors causing people to live in badly heated homes and include " low income, high fuel cost, poor insulation, inefficient heating equipment, inability to manage budgets, personal choice of priorities, dependency on others and living in inappropriate or out of scale accommodation."
Energy City	Fuel Poverty. The inability to afford adequate energy services for the household.
EPEE	Fuel Poverty. A difficulty, or even incapacity to have proper heating in one's home, all this at a reasonable cost.
EU Fuel Poverty Network - Thomson and Snell	Fuel poverty. A term used to describe a situation when a household is unable to afford the most basic levels of energy for adequate heating, cooking, lighting and use of appliances in the home.
EVALUATE	Energy poverty. Defined as the inability to secure a socially- and materially-necessitated level of domestic energy services (heating, lighting, cooling, and so on); Energy vulnerability can be seen as the propensity of a household to suffer from a lack of adequate energy services in the home. Energy vulnerability can be seen as the propensity of a household to suffer from a lack of adequate energy services in the home.
FinSH	Energy or 'fuel' poverty. A term used to describe the situation a household finds itself in when it is not able to afford the energy bills for its everyday needs, such as heating, lighting and hot water.

A review of the definitions used across the studies highlight commonalities, which could inform a recommendation for a specific pan-

European definition of energy poverty, namely:

- Strong focus on heating energy above other energy services
- Affordable energy prices
- Minimum standard of living (basic needs).

The EPEE project (2009) recommends that the EU acknowledge the key issues of adequate and affordable warmth, noting that while within their research a common understanding was reached across five countries, Member States should *"recognise energy poverty and refine the common definition according to their own national circumstances."* Furthermore, EPEE advocates for a common stance on what defines "vulnerability". However, at the time of the project conclusion (2009), the following definition for energy poverty was recommended:

Situation in which a household has to spend more than one tenth of its income to pay bills to heat its dwelling to an acceptable standard, based on levels recommended by the W.H.O.

In order to understand the situation, improved data is required from each Member State. To compile these data, it has been recommended to establish a dedicated fuel poverty observatory, which would work together with Member States across the various relevant government departments. This working group could also host a central data repository, where better indicators (such as expenditure on energy as share of income), data sets and data collection can be designed and implemented (EPEE 2009, Thomson and Snell 2013).

The current data sets available at the EU level to assess energy poverty are proxy indicators from EU-SILC (see previous section).

Some studies have looked into estimating the extent of energy poverty across Europe based on these proxy indicators with varying results.

However, certain Member States perform below the EU-28 average in at least two of these indicators, namely Bulgaria, Hungary, Slovenia, Romania, Latvia, Estonia, Greece, Lithuania, Cyprus and Poland, which points towards underlying structural issues (see BPIE (2014), EVALUATE (2015), Thomson and Snell (2013)).

Thomson and Snell (2013) provide an overview of the best practices for monitoring energy poverty using two main methods: the expenditure method and the consensual method. The expenditure method employs a measure of household expenditure on energy as a share of a particular income. The consensual method assesses whether a household is in energy poverty via a survey based approach regarding living conditions e.g. ability to keep warm, problems with building condition. For the EU, such survey-based proxy indicators are taken from EU - SILC. While both methods have advantages and disadvantages, Thomson and Snell prefer the consensual method as it offers a standardised pan European basis.

Given the new knowledge around geographical differences in levels of energy poverty and the causes perpetuating the state of energy poverty, particularly in the Southern and Eastern Member States, recommendations have been made to address the root causes of these structural inefficiencies with measures to address the acute energy needs of households.

The recommendations from the ten EU-wide research initiatives can be summarised into five categories as shown in Table 3 and include regulatory and legislative recommendations, financial mechanisms, energy efficiency, information, awareness and education and areas of further research. The majority of recommendations fall into strengthening legislation.

Table 3: Summary of recommendations from EU-wide energy poverty research initiatives

Issue	Recommendation	Project
Regulatory, Legislation	Regulatory mechanisms to ensure tenants benefit from investments in energy efficiency upgrades in buildings, where landlords are required to refurbish buildings as per the UK example (Green Deal) (MS level).	BPIE
	Amendment and/or strengthening of existing legislation at EU level to better support energy poverty action on the MS level. These action plans look to define targets, identify action, set policies and actions. These amendments include, for example, relaying energy efficiency improvements to buildings in the context of energy poverty policies, setting higher standards for energy efficiency criteria, prioritisation of social housing for energy efficiency refurbishments and linking energy poverty objectives to achieving national energy and emission targets.	EPEE
	Policies should be implemented to strategically target energy services rather than household fuels. This highlights the broad sense of energy requirements of the household and enables a variety of stakeholders to take action (MS level).	EVALUATE
	The infrastructural vulnerability perpetuating energy poverty should be reduced so that households in need should benefit from specially targeted tariffs, disconnection protection, debt counselling and policies (MS level with support from EU level).	EVALUATE
	Policy at both the EU and national levels needs to ensure that the drivers of energy poverty (geographic location, housing condition and income) are taken into consideration and that appropriate responses are taken to address fuel poverty on an EU level with action at the national level. Energy and climate policies developed should ensure that energy poverty is not aggravated.	Thomson and Snell
	Assistance to vulnerable regions to cope with increasing energy prices and potentially lower revenue due to seasonal employment e.g. less tourism. Coordination of policies on local, regional, national and EU level to ensure energy efficiency measures reach households and industry.	ReRisk
	Guidelines for a common definition so each Member State can tailor a specific definition to their context. These should include acknowledgement of the key issues of adequate warmth at affordable costs. A common definition of a vulnerable consumer is also required.	EPEE
	Designation of a dedicated fuel poverty working group with cooperation across various departments (EU level). This working group will report on national and EU level data, such as energy tariffs and social impact of energy supply. Appropriate data sets and indicators should be drawn up, but the reporting should be enforced through EU level regulation.	EPEE
	EU regulation is needed to achieve building refurbishments in the existing building stock. This can be reinforced through the requirement of Energy Performance Certificates.	ELIH-MED
Financing mechanisms	Public financing schemes for the investment in energy efficient renovations in buildings based on public budgets, such as regional, national or EU funds (Cohesion funds) (EU and MS level).	BPIE
	EU funding schemes should complement national funding efforts.	ELIH-MED
	Energy efficiency measures should specifically target social housing where the occupants have low incomes. These are often in the form of grants at the national level, but typically support for tenants is lacking.	FinSH
Energy efficiency	Simple energy audits through consultations and energy efficiency installations in low-income households result in financial savings for households and local government.	ACHIEVE, EC-LINC
	Renovation of old buildings should be coupled with financial incentives. An EU financing scheme could include enhancing Member States' use of the Cohesion Fund for housing projects. Another option is to use up to 6% of the total European Regional Development Fund for building refurbishment allocated on the basis of national building refurbishment action plans.	ELIH-MED

	More encouragement is required for new buildings to be very low energy using buildings (EU and MS level).	ELIH-MED
	Improving energy efficiency in the home will improve the building performance, reduce the associated damp and rot and decrease energy bills (EU and MS level).	Thomson and Snell
	Examples of energy savings check project in Utrecht and insulation for all in Kirklees. Financial benefits to households and the City saves on carbon emissions.	Energy Cities
Information, awareness and education	Guidelines for the collection of consistent and reliable data on energy poverty through a fuel poverty data working group. This would oblige Member States to report on how obligations to energy consumers are achieved.	EPEE
	Rolling out smart meters to better inform households about energy consumption and allow them to make better (more energy efficient) decisions.	ELIH-MED
	Energy consumption data should be available for projects involving public funding through a contract between public authorities and energy suppliers.	ELIH-MED
	Households need to be educated about how they are using energy and how energy use can be more efficient through behaviour change or external modifications, particularly building retrofits. Involving tenants in the process is particularly necessary to ensure the successful implementation of energy efficiency retrofits.	FinSH
Further research	More research is required to ensure that vulnerable customers also receive the help that they require (EU and MS level).	Energy Cities
	There are differences in the energy challenges experienced in households in the rural setting and in areas where the energy infrastructure is limited and these aspects need to be further researched (EU and MS level).	Thomson and Snell
	Further research is required to assess how Member States are faring in terms of energy poverty (also in terms of trends) and how they can be assisted in addressing energy poverty in their context in relation to other policy objectives. More comprehensive data should be collected to compare how much households are spending on energy (EU and MS level).	Thomson and Snell

IV. MEMBER STATE REVIEW

This section of the report summarises the efforts across different Member States to define and protect vulnerable consumers and address energy poverty. At the minimum, based on the Third Energy Package, the definition of vulnerable consumers and measures to protect them are described. However, some Member States have a broader approach to the issue of energy poverty, through strong energy efficiency efforts or social policy, which this review also aims to highlight.

More detailed overviews for each Member State are provided as separate appendices (see Appendix I-III).

At an early stage, a data collection template was designed that ensured relevant data were collected in a consistent manner. Data collection focused on collating information for each Member State on the following –

- Gas and electricity market information
- Policy perspective on issues of vulnerable consumers / energy poverty
- Definition of vulnerable consumers / energy poverty
- Policies and measures to address the issues.

Information was gathered via desk-based review but also by targeting key stakeholders, particularly national energy regulators. Contributing stakeholders are acknowledged in each of the country reports as well as at the beginning of this report.

IV.A. Member State approaches to addressing the issues

IV.A.1. Defining vulnerable consumers

As described earlier in Section II, Member States are required to recognise and define groups in society who are vulnerable consumers in the retail energy markets, in respect to meeting their household energy needs. The relevant directives leave it open as to how vulnerability be defined although do point to concerns around affordability, with reference to energy poverty.

As a requirement in the directive, most Member States have either defined the concept of vulnerable consumer explicitly, or have done so implicitly, even if they do not recognise the term. For example, Finland and Luxembourg do not use the terminology but do recognise concerns around vulnerability to access to or affordability of household energy. It is also important to recognise that a number of Member States are still developing their approach on this issue, and definition to use e.g. LT, HR, AT, GR.

Based on our review, different definitions of vulnerable consumers have been categorised by type (Table 4). The most common type of definition is based on *receipt of social welfare*, which includes ~40% of Member States. In this category, there is not necessarily a reference to energy costs per se but vulnerability due to social circumstances.

Definitions which explicitly reference issues of difficulty with affording energy costs or households incurring high expenditure are included in the category *energy affordability*. Four countries specifically refer to *health and disability* concerns as the main characteristic of vulnerability, although such issues are also

often considered under *social welfare* and *socio-economic group* categories. Specific Member States refer to a broad range of *socio-economic groups*, which may include income, age or health characteristics.

Table 4: Categorisation of Member States' definitions of vulnerable consumers

Definition type	Member State (MS)	No. of MS in category
Energy affordability (low income / high expenditure)	FR ² , IT, SE	3
Receipt of social welfare	BG, CY, DE, DK, EE, FI ¹ , HR, HU, LT, LU, MT ⁴ , PL, PT, SI ^{3,6}	14
Disability / health	CZ, NL, SK, IE	4
Range of socio-economic groups	AT, BE, ES, GR, RO, UK ⁵	6
Not available / Under discussion	LV	1

- 1 Although term not officially recognised.
- 2 Under definition of energy poverty.
- 3 Also includes disabled individuals
- 4 Also has health and income categorisations.
- 5 Based on OFGEM definition, not the national fuel poverty definitions.
- 6 According to the Concept for the protection of consumers fulfilling conditions of energy poverty, new definition and indicators will be based on social (economic) criteria.

The categorisation of these Member States was corroborated through the CEER (2013) database, which allows four categories, namely based on explicit recognition in the legal framework by personal properties of customers (e.g., age, disability, health) or non-personal or situational circumstances (e.g., unemployment, single parenthood), implicit recognition through energy or social law, or the option of no recognition, or a combination of these.

Table 5 below lists the definitions for each of the Member States.

Table 5: Member States' definitions of vulnerable consumers

Member State	Cat. ⁹	Definition of vulnerable consumers ¹⁰
Austria	C	The concept of vulnerable customer is implemented through a series of protection mechanisms for clearly identified groups of people/households according to social security and energy laws.
Belgium	A,B	<u>Flanders</u> : Cf. national definition of "sociale maximumprijs". In Flanders, vulnerable customers are those customers that are entitled to get the social tariff. National legislation defines the preconditions to get the social tariff. <u>Brussels</u> : The Brussels Region applies the definition of vulnerable customer such as defined in the Directive. The categories recognised by the national Government as vulnerable ones are also recognised in the Brussels Region. The Brussels Region recognises two extra categories of customers as vulnerable: 1) which are recognised as vulnerable customers by local public aid centres and 2) ones that meet certain criteria defined in the regional legislation in terms of revenues and number of persons composing the household and whom are on that basis recognised as vulnerable customers by the Brussels regional regulator. For the two additional categories recognised in the Brussels Region the 'statute' of vulnerable customers is linked to a limitation of power supply and is limited in time and ceases once the customer has paid off his debt to his supplier. <u>Federal</u> : The definition of the concept of vulnerable customers is implicitly recognized by the energy law and/or social security system in my country; The energy law/legal framework explicitly states what groups of customers are regarded as "vulnerable" based on personal properties of customers (disability).
Bulgaria	C	Social Assistance Law through Ordinance No. RD-07-5 as of 16 May 2008 for provision of targeted benefits for heating is given once a year to Persons or families whose average monthly income in the last six months is lower or equal to differentiated minimum income; these citizens are eligible for heating benefits according to Art. 10 and 11. ¹¹ From July 2012, vulnerable customers are defined in the Energy Act.*
Croatia	C	In its valid and effective wording, the Energy Act does not define 'vulnerable customer'; for consumers who can be regarded as 'socially disadvantaged', certain measures for their protection and support for their rights are provided for at the level of generally applicable legislation in the domain of social security law ¹²

⁹ A) The legal framework explicitly states what groups of customers are regarded as "vulnerable" based on personal properties of customers, e.g. their age, disability, health, etc.
B) The legal framework explicitly states in what situations customers are regarded as "vulnerable" based on non-personal or situational circumstances e.g. unemployment, single parenthood, etc.
C) The definition of the concept of vulnerable customers is implicitly recognized by the energy law and/or social security system in my country;
D) A definition of the concept of vulnerable customers does not exist in my country;
E) Other, please specify.

¹⁰ All definitions are sourced from the CEER Vulnerable Consumers Status Review (2013). Where there were data gaps, these were updated from the COM Progress towards completing the Internal Energy Market Communication. Annex 2 (2014) denoted with a * unless an alternative source is noted.

¹¹ ESPN. Minimum income schemes (2009). <http://ec.europa.eu/social/BlobServlet?docId=9022&langId=en>

¹² National Report of the Energy Regulator Office on the Electricity and Gas Industries in the Czech Republic in 2013.

Member State	Cat.	Definition of vulnerable consumers
Cyprus	A,B,C	The definition of vulnerable customers is determined in a Ministerial decree (CEER 2013). Additional public assistance is provided to recipients to satisfy special needs, including "heating 170 euro per annum". Recipients include persons with disability and medically confirmed patients treated abroad for a period not exceeding six months; persons with disability studying in an educational institution in Cyprus or abroad (for a period not exceeding by more than one year the normal period of their course) to obtain qualifications that will help them become independent of public assistance; and persons under the care of the director of the Social Welfare Services (SWS) when they become 18 years old and enrol in an educational institution in Cyprus or abroad in order to obtain qualifications that will help them become independent of public assistance ¹³
Czech Republic		There is a legal term "protected customer" such as hospitals and ill people dependant on life-support equipment.
Denmark	C	There are no specific provisions regarding vulnerable consumers in energy law; instead this issue is dealt with in social legislation.* However the principal of universality exists where every citizen has a right to social assistance when affected by a specific event. Various schemes in existence for short and longer-term support to unemployed, social security for the non-working ¹⁴
Estonia	C	A household customer to whom subsistence benefit has been awarded pursuant to section 22(1) of the Social Welfare Act: A person living alone or a family whose monthly net income, after the deduction of the fixed expenses connected with permanent dwelling calculated under the conditions provided for in subsections 22 (5) and (6) of this Act, is below the subsistence level has the right to receive a subsistence benefit. Subsistence level is established based on minimum expenses made on consumption of foodstuffs, clothing, footwear and other goods and services which satisfy the primary needs. ¹⁵
Finland	B,C	In the energy market act there are defined in connection to the disconnection of the electricity. Also in the constitution there is a concept of basic rights and social security legislation defines the target groups.
France	B	Special tariffs are reserved for households with an income below or equal to a threshold of entitlement to supplementary universal health cover. These tariffs are available for both electricity and natural gas consumers. From the end of 2013, these social tariffs were further extended to cover all households with an annual reference fiscal income per unit (revenu fiscal de reference) lower than EUR 2,175. The number of households benefitting from the social tariff is expected to increase from 1.9 million to 4.2 million, equivalent to 8 million people.*
Germany	C	Vulnerable customers eligible for support are in line with the social security system (CEER 2013). Additional support is provided in terms of consumer protection in line with the Third Energy Package.*

¹³ ESPN. Minimum income schemes (2009). <http://ec.europa.eu/social/BlobServlet?docId=9023&langId=en>

¹⁴ ESPN. Minimum income schemes (2009). <http://ec.europa.eu/social/BlobServlet?docId=9025&langId=en>

¹⁵ ESPN. Minimum income schemes (2009). <http://ec.europa.eu/social/BlobServlet?docId=9026&langId=en>

Member State	Cat.	Definition of vulnerable consumers
Greece	A,B	Groups of customers defined under the Energy law: (a) The financially weak customers suffering from energy poverty. (b) Customers who themselves or their spouses or persons who live together, rely heavily on continuous and uninterrupted power supply, due to mechanical support. (c) Elderly who are over seventy years old, provided they do not live together with another person who is younger than the above age limit. (d) Customers with serious health problems, especially those with severe physical or mental disability with intellectual disabilities, severe audiovisual or locomotor problems, or with multiple disabilities or chronic illness who can not manage their contractual relationship with their Supplier. (e) Customers in remote areas, especially those living at the Non Interconnected Islands.
Hungary	A,B,C	Vulnerable customers' shall mean those household customers who require special attention due to their social disposition defined in legal regulation, or some other particular reason, in terms of supplying them with electricity.
Ireland	A	A vulnerable customer is defined in legislation as a household customer who is: a) critically dependent on electrically powered equipment, which shall include but is not limited to life protecting devices, assistive technologies to support independent living and medical equipment, or b) particularly vulnerable to disconnection during winter months for reasons of advanced age or physical, sensory, intellectual or mental health.
Italy	A	Several measures aim to protect customers (vulnerable household customers, utilities, activities relating to 'public service', including hospitals, nursing homes and rest, prisons, schools and other public and private facilities that perform an activity recognized of public service as well as household customers that require electricity-powered life-support equipment with severe health problems). Italian decrees establish the "social bonus" (a social support program) defined by the Government for the benefit of electricity customers whose annual income does not exceed a certain threshold (set up by the law and certified by equivalent economic situation indicator, that takes into account income, assets, the characteristics of a family by number and type). The "social bonus" is a discount (annual amount fixed the same in the free market or in the enhanced protection regime) of the electricity bill each year, dependent upon the use, number of people in the family, and climate zone
Latvia	D	There is no clear definition of vulnerable consumers yet, but plans exist to introduce several measures to inform and support vulnerable consumers.*
Lithuania	D	The persons to whom according to the procedure established by the Laws of the Republic of Lithuania social support is granted and/or social services are provided can be defined as socially vulnerable customers. The list of socially vulnerable customers and the groups thereof and/or additional social guarantees, related to supply of electricity, which are applied to such customers or their groups, are set by the Government or its authorized institution. Developing the definition (list) of vulnerable consumers is currently under discussion.
Luxembourg	C	All customers are de facto considered as potentially vulnerable in Luxembourg.*
Malta	C	Vulnerable consumers are supported through social policy. Recipients of social security are eligible for support
Netherlands	A	Legislation states that a household consumer for whom ending the transport or the supply of electricity or gas would result in very serious health risks for the domestic consumer or a member of the same household of the household customer is regarded as vulnerable, and thus disconnection is not permitted, unless a case of fraud has been proved
Poland	C	The energy law states that vulnerable customer of electricity is a person who is eligible to housing allowance (income support) because the level of its income is lower than a certain degree. That means that the concept of vulnerable customers is based on poverty.

Member State	Cat.	Definition of vulnerable consumers
Portugal	C	The concept is defined in the energy sector law and corresponds to that of economically vulnerable customers which correspond to people receiving certain social welfare subsidies (social security system) with some contract limitations (e.g. contracted power). These customers have access to a social tariff.
Romania	A,C	Vulnerable customers are defined as household consumers with low income within the limits laid down in the Ordinance 27/2013*
Slovakia	D	The concept for the protection of consumers fulfilling conditions of the energy poverty was in preparation in 2013. Act on Energy Industry defines vulnerable household electricity customer as a strongly disabled person and whos vital functions are depending upon the offtake of electricity and uses electricity for heating. The DSO keeps records of vulnerable customers and can disrupt electricity distribution only after previous direct communication of these electricity customers with the DSO.
Slovenia	C	Social support is provided to households through a minimum income to households/individuals without an income or an income below the official level. ¹⁶
Spain	A,B	The concept of vulnerable costumers has only been defined so far for electricity customers. Vulnerable customers should fulfil at least one of the following criteria: a large family or a family where all members are unemployed; be low voltage consumers (less than 1 kV) with contracted demand lower than or equal to 3 kW; or a pensioner older than 60 years with a minimum level pension. Vulnerable customers' electricity tariffs are reduced by means of a "social bonus", which sets their tariffs at the July 2009 level. As of December 2012, 2,544,170 customers were defined as vulnerable.
Sweden	E	Vulnerable customers are defined as persons who permanently lack ability to pay for the electricity or natural gas that is transfered or delivered to them for non-Commercial purposes.
United Kingdom	A,B	Ofgem have defined vulnerability as when a consumer's personal circumstances and characteristics combine with aspects of the market to create situations where he or she is: -significantly less able than a typical consumer to protect or represent his or her interests in the energy market; and/or -significantly more likely than a typical consumer to suffer detriment, or that detriment is likely to be more substantial

¹⁶ ESPN. Minimum income schemes (2009). <http://ec.europa.eu/social/BlobServlet?docId=9042&langId=en>

Our review highlights that the non-prescriptive approach to defining vulnerable consumers results in a range of interpretations. Two key questions emerge from this –

- i. how important is the definition of a vulnerable consumer in order to provide protection to vulnerable consumers, and to address energy poverty?
- ii. how do Member States want to shape action in this area?

Concerning i), the definition should do two things; it both identifies the problem and those most vulnerable to the consequences. For some Member States, vulnerability is about disability, or because of social circumstance, or due to age, while in other Member States it is about recognising those that have difficulty in affording energy costs. The Croatian case is interesting because the draft legislation differentiates between those that are medically disadvantaged and those that are socially (financially) disadvantaged, recognising different levels of protection that should be afforded between the two groups.

The range of definitions highlights different problems and challenges around vulnerability in the energy market, and therefore identifies a range of consumer groups. These definitions therefore also have a bearing on the type of action that follows.

Concerning ii), action to protect a vulnerable consumer may simply be to ensure a consumer with health problems is not disconnected during winter months, or focused on protecting low income consumers from falling into energy poverty. The level and type of action taken in Member States is considered in detail in the next section.

In summary, the wording in the directives does not necessarily mean that definitions of vulnerable consumers are necessarily targeted

on preventing energy poverty. A more prescriptive definition of what constitutes vulnerability in the energy sector would be needed to ensure that resulting actions are specifically focused on addressing energy poverty, and vulnerability to it.

In some Member States (e.g., Italy) there is no official definition for energy-vulnerable consumers (only vulnerable consumers) nor for energy poverty, but at the same time it is evident that awareness about the issues as well as measures to address them have been in place for more than 5 years. This is not a unique case in the European context as clearly recognized by the CEER (2012) who stated that *"...the existence or absence of a concept of vulnerable customers does not provide an indication of how well vulnerable customers are protected in the various member countries"*.

Based on the type of definition (and the measures that are introduced), Member States can also be categorised according to whether policy and action in this area is social or energy policy-focused. To some extent, this is not a clear distinction, as many Member States active in this area will have social and energy ministries involved in formulating and implementing measures. For example, a range of Member States use the social welfare systems as a basis for targeting action but may still regard the issue as a distinct energy policy issue.

This subjective distinction is based on who drives policy, how the problem has been defined, and typically the type of measures undertaken. For those Member States with a social policy-focus, the issue of vulnerability is often viewed as a function of low income, and therefore poverty (and not as a distinctive issue e.g. energy or fuel poverty).

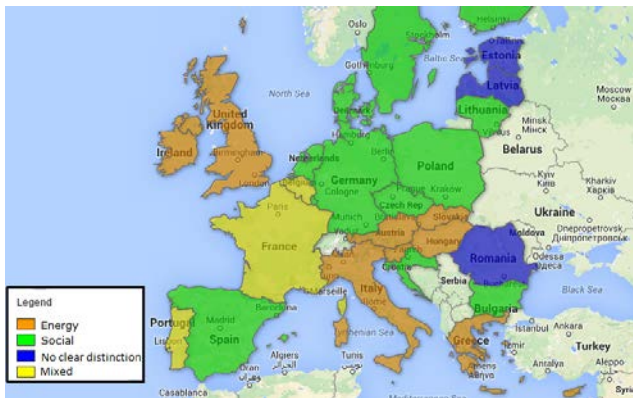


Figure 9: Member States' categorised as social or energy policy-focused

Scandinavian and Northern European countries (including Netherlands, Germany, and Poland) and some selected Eastern European countries (Bulgaria, Czech Republic, and Croatia) view the challenge via a social policy outlook (Figure 9). Other countries, including those in Western and Southern Europe, tend to view this as a distinctive energy policy issue, of course which has important social dimensions. For some Member States, we have defined the approach as mixed e.g. defined in energy law but based on socio-economic criteria, as in Portugal or France. This distinction is important as it highlights the different outlooks on the problem, and approaches to addressing the issue.

IV.A.2. Defining energy poverty

Specific Member States, particularly those in the energy policy focused group, also recognise the issue of energy poverty in their

legislation (FR), or have a separate definition, as the UK (and its respective devolved administrations) does for fuel poverty. The energy and fuel poverty definitions identified for eight Member State are provided in Table 6.

Note that a number of definitions are proposed and are not operational; however, they do reflect increased recognition of the problem. They are specifically targeted at identifying groups facing problems of affordability in maintaining necessary energy services, particularly heating, in their homes. In addition, such definitions often consider all energy types, not just electricity and gas. This is particularly important in countries where other energy is used for home heating, particularly oil and biomass (often in rural areas), and district heating.

Therefore, resulting action in some Member States, as described in the next section, is a function of not only the regulatory focused action to protect vulnerable consumers but a broader set of measures focused on addressing challenges of energy and fuel poverty. Given that the latter problem is more structural in character (e.g. arises due to poor building fabric, and long term socio-economic deprivation), this has implications for the types of measures needed. Where both definitions are operational in policy, care is needed to ensure that objectives of different measures are aligned.

Table 6: Member State definitions of energy and fuel poverty

Member State	Energy / fuel poverty definition	Definition metric	Status
Austria	Households are considered at risk of energy poverty if their income is below the at-risk-of-poverty threshold and they simultaneously have to spend an above-average percentage of their household income on energy.	Proposal to use multiple indicators: household income, housing expenses, energy costs; information about past due bills, disconnections, installations of pre-paid meters, etc.; subjective indicators, such as permanent household financial difficulties.	Unofficial definition under consideration
Cyprus	Energy poverty may relate to the situation of customers who may be in a difficult position because of their low income as indicated by their tax statements in conjunction with their professional status, marital status and specific health conditions and therefore, are unable to respond to the costs for the reasonable needs of the supply of electricity, as these costs represent a significant proportion of their disposable income.	Share of income spent on energy	Official definition
France	<i>Definition according to article 11 of the "Grenelle II" law from 12 July 2010:</i> Is considered in a situation of energy poverty "a person who encounters in his/her accommodation particular difficulties to have enough energy supply to satisfy his/her elementary needs, this being due to the inadequacy of resources or housing conditions."	A quantitative threshold is missing.	As a result of no quantitative threshold, the definition is not sufficiently operational.
Ireland	Energy poverty is a situation whereby a household is unable to attain an acceptable level of energy services (including heating, lighting, etc) in the home due to an inability to meet these requirements at an affordable cost.	Spends more than 10% of its disposable income on energy services in the home.	Official national definition
Italy	A family is vulnerable when more than 5% of income is spent for electricity and 10% for gas.	As stated in the definition – spending 5% of income on electricity and 10% on gas	Unofficial definition proposed by regulator.
Malta	Energy poverty: inability to achieve a necessary level of energy services in a household. Fuel poverty: mainly linked to inability to achieve the necessary level of fuel use for heating homes (i.e., if the household were to spend on the necessary fuel, then it would fall below the poverty line).	Currently only using the EU-SILC indicator for share of population unable to keep the home adequately warm. Proposals to include subjective feedback from consumers through household budgetary surveys and compare energy consumption across sectors.	These are unofficial definitions proposed by NGO.

Member State	Energy / fuel poverty definition	Definition metric	Status
Slovakia	Energy poverty is defined as a condition when average monthly household expenditures for the consumption of electricity, gas and heat, represent a significant share of the average monthly household income.	<p>According to the Concept for the protection of consumers fulfilling conditions of energy poverty, issued by the Regulatory Office, the Statistical Office provides information on average monthly household expenditure for energy consumption and household income. A household can be considered as energy poor if disposable monthly income is lower than the minimum monthly disposable household income threshold.</p> <p>The threshold is published on the website of the Ministry of Labour, Social Affairs and Family of the Slovak Republic, the Regulatory Office for Network Industries and on message boards of labor, social affairs and families, municipalities and municipal authorities.</p>	The threshold is currently a proposal.
UK (England)	A household to be fuel poor if i) their income is below the poverty line (taking into account energy costs); and ii) their energy costs are higher than is typical for their household type (DECC 2013).	<p>Low income, high consumption (LIHC). Two criteria include i) fuel costs are above the median level, and ii) residual income net of fuel cost spend is below the official poverty line. This applies in England, while other constituent countries use the 10% threshold metric.</p> <p>Note that England continues to report the 10% threshold metric for comparison, which is that <i>a fuel poor household is one which needs to spend more than 10% of its income on all fuel use to heat it home to an adequate standard of warmth (21°C in living room, and 18°C in other rooms as recommended by WHO.</i></p>	Official national definition. Proposed target <i>to ensure that as many fuel poor homes as is reasonably practicable achieve a minimum energy efficiency standard of Band C, by 2030</i> (DECC 2014b).
UK (Scotland)	A household is in fuel poverty if, in order to maintain a satisfactory heating regime, it would be required to spend more than 10% of its income (including Housing Benefit or Income Support for Mortgage Interest) on all household fuel use (Scottish Executive 2002).	The definition of a 'satisfactory heating regime' as per for Wales (below)	Official national definition. Target is that as far as reasonably practicable, fuel poverty will be eradicated by 2016.

Member State	Energy / fuel poverty definition	Definition metric	Status
UK (Wales)	Fuel poverty is defined as having to spend more than 10 per cent of income (including housing benefit) on all household fuel use to maintain a satisfactory heating regime. Where expenditure on all household fuel exceeds 20 per cent of income, households are defined as being in severe fuel poverty (Welsh Assembly Government 2010).	As stated. The definition of a 'satisfactory heating regime' recommended by the World Health Organisation is 23°C in the living room and 18°C in other rooms, to be achieved for 16 hours in every 24 for households with older people or people with disabilities or chronic illness and 21°C in the living room and 18°C in other rooms for a period of nine hours in every 24 (or 16 in 24 over the weekend) for other households.	Official national definition. Target is that as far as reasonably practicable, fuel poverty will be eradicated amongst vulnerable households by 2010, in social housing by 2012 and by 2018, there would be no-one in Wales living in fuel poverty.
UK (Northern Ireland)	A household is in fuel poverty if, in order to maintain an acceptable level of temperature throughout the home, the occupants would have to spend more than 10% of their income on all household fuel use (DSDNI 2011).	'Acceptable' level as per WHO 'satisfactory heating regime'	Official national definition.

IV.A.3. Lessons on defining energy poverty for the EU

Based on Member State experiences, and wider EU research on energy poverty, this section highlights some of the challenges of definitions, and what is needed to develop metrics at the EU level.

At the European level, no dedicated survey of energy poverty exists, nor standardised household data on energy, such as expenditure, consumption or efficiency. This makes developing a specific energy poverty indicator challenging, and means that most

researchers have been using EU-SILC survey-based proxy indicators.

Thomson and Snell (2014) recently undertook a pilot study to explore options for constructing EU indicators of fuel poverty. In their report, they make some useful recommendations concerning how to take this issue forward. These include developing existing household surveys so that they can be more effectively used for energy poverty analysis, and the collection of new datasets. The recommendations are set out in Table 7 below.

Table 7: Recommendations for improving datasets for analysis of energy poverty (Thomson and Snell, 2014)

Recommendations	Description
1. Amend and harmonise existing surveys	Make existing survey more relevant for measurement and analysis of energy poverty.
1a. Amend the EU Statistics on Income and Living Conditions (EU SILC)	EU-SILC was not designed for analysis of energy poverty issues. Detailed recommendation suggests inclusion of new variables that capture issues of energy expenditure, payment method, efficiency measures and heating systems. Existing variables should be modified to help differentiate between issues of affordability and technical characteristics of building / heating systems. Changes to EU SILC would need to be considered by the Indicators Sub-Group of the Social Protection Committee, in consultation with Member State statistical agencies, so could be a lengthy process.
1b. Harmonise Household Budget Surveys (HBS)	Another approach is to harmonise national household budget surveys and create a pan-EU dataset of actual fuel expenditure across Europe. This would entail reducing variation in sampling, design and frequency. It would be a major effort, and would require cooperation across Member States. The limitations of using these data are that actual consumption is not necessarily a good indicator of energy poverty, due to under-expenditure in energy-poor households.
1c. Pan-European monitoring of cold-related morbidity and mortality	A final approach is to monitor health and well-being impacts of energy poverty via cold-related illnesses and deaths. An approach to this has been developed under the EuroMOMO project, as an example of best practice for standardising the measurement across Europe.
2. Collect new data	Develop new datasets requires a large investment in resources to establish new surveys but provides the basis for improved understanding of the critical issues of energy poverty.
2a. Dedicated EU28 household survey of fuel poverty	Types of data that would be needed include – <ul style="list-style-type: none"> + Sociodemographic, including income and household composition. Actual energy expenditure (all fuel types), and payment methods and tariffs. + Technical energy efficiency and housing quality data to allow estimation of required energy expenditure (comparable to the English Housing Survey) + Self-assessed health and wellbeing + Self-perceived affordability/burden, thermal comfort and shivering, with focus on keeping warm during cold winter months (or cool during hot summer months). + Inclusion of heating and cooling degree days to control for variations in climate.

It is important that the European Commission, in consultation with Member States, consider the recommendations outlined above. Later in this report, we recommend that the lack of data currently means that a specific expenditure-based metric cannot currently be considered. However, the Commission can –

- Define the concept of energy poverty, without prescribing a metric. Further

discussion of a possible definition is provided in the section on recommendations.

- Use research based on EU-SILC proxy indicators, to highlight the strong evidence of the energy poverty issues across Member States.
- Take forward the above recommendations, so that the evidence base can be improved in future years.

- Encourage the development of Member State metrics, and disseminate practice across Member States as per the information in the next section.

Consensual-based indicators, including those based on EU-SILC, may be considered best suited to capture the issues of energy poverty at the EU scale (as argued by Thomson and Snell 2013). This would particularly be the case if the EU-SILC survey could be further developed. It is not clear whether an expenditure based metric would necessarily provide additional insights. This issue needs to be further considered, and weighed against the cost of developing new surveys / datasets. Grevisse and Brynart (2011) argue that a precise definition and specific indicators allow for quantifying and monitoring of the problem and that without this, progress towards addressing energy poverty will remain stalled as it is not possible to reduce the numbers of people suffering from energy poverty.

Moore (2012) notes the problems associated with the expenditure-based metric cited in a Commission working paper (EC 2010), and its application at the EU level. Firstly, actual expenditure, using HBS data, is a poor proxy of households in energy poverty, as many low income households underspend on energy required to keep their homes adequately warm. Secondly, moving to a better measure of fuel costs required to keep a home adequately warm requires good knowledge of the housing stock, and the socio-economic characteristics of households across the stock. While this is available in the UK, few other countries have such data.

IV.A.4. Lessons on defining energy poverty for Member States

As Moore (2012) states it is important to distinguish between metrics or indicators needed to identify the problem of energy

poverty for national-scale analysis versus actual fuel poor homes. While the national-scale indicators provide an understanding of the country and regional-scale problem, they do not identify energy poor households. This has to be done by household visits at the community scale and by experienced practitioners. Other proxy indicators are often used to help identify areas where energy poverty is most prevalent. This latter point is discussed later in this section; however, our focus is on national scale metrics to identify the extent of energy poverty.

To do this, we have reviewed some of the academic literature, and focused on the Member States with most experience of identifying the problem, namely UK, France and Ireland. In Member States that have or are considering energy poverty metrics (Table 6), most experience relates to expenditure-based metrics (as opposed to consensual-based metrics previously discussed). Such metrics define energy poverty in terms of a given percentage of income spent on energy or fuel.

Boardman first formally defined fuel poor households in the UK (using such a metric) as those unable to obtain adequate level of energy services, particularly warmth, for 10% of its income (Liddell et al. 2012). The 10% level reflected that 30% of households with the lowest incomes were spending an average 10% on fuel (using 1988 data). At the time, 10% reflected a twice-median level of all UK households.¹⁷ This metric has since been developed to use an expenditure threshold relating to what is necessary fuel expenditure for a household, as opposed to actual expenditure. This is a critical point; Liddell et al. (2012) highlight DECC statistics which indicate that in England needs of fuel poor

¹⁷ As Liddell et al. 2012 note, median expenditure is viewed as a more appropriate measure for fuel poverty as it smooths out the effects of extreme values.

households were 21% higher than actual expenditure in 2009.

Thomson (2013) outlines a number of considerations in relation to expenditure-based metrics.

- Type of cost threshold - relative or absolute? This is discussed in the UK example below. There is also the discussion relating to the threshold using the mean or median, as noted above.
- Fuel expenditure - actual or required?. While actual expenditure is viewed as a poor proxy, the data are typically available. The more robust approach of required expenditure requires good building stock data.
- Measuring household income. There are three issues highlighted here; i) to use a 'before housing' costs or 'after housing' costs measure, secondly, ii) what benefits should be included as disposable income, and iii), whether income should be equivalised (standardized to account for household size and composition). On i), the argument for 'after housing' costs, as used by Hills (2012) is that those housing costs can't be spent on fuel anyway.
- Estimating household energy requirements. In the UK, this accounts for all household energy needs (heating, lighting, appliances). However, the modelling is complex, requiring understanding of the building stock, household composition, occupancy, geographic location. For adequate warmth, the UK uses the WHO range, except Scotland where a higher 23°C is used for vulnerable households.

The advantages of the expenditure-based metric is that it has been operationalised in countries recognising energy poverty, and is both quantifiable and objective. However, in her review, Thomson (2013) has shown that the UK 10% metric has often been misapplied, so is not that straightforward a metric to transfer.

In addition, 10% is a UK-based value, and does not necessarily have relevance in other Member States; this depends on what is the twice-median expenditure. The UK measure also relies on required energy for all household services (not just heat), and is based on complex modelling. In their application of such an approach, Member States need to consider the applicability of expenditure-based metrics, country-specific thresholds, and identify what the data can support.

This section now considers some Member State experiences of using energy poverty metrics, before drawing some lessons concerning the development of metrics at the Member State level. We first consider the current UK approach to a fuel poverty definition, in Box 2.

Box 2. Definition of fuel poverty in the UK

In the first UK strategy (DETR 2001), a fuel poor household was defined as one which needs to spend more than 10% of its income on all fuel use and to heat its home to an adequate standard of warmth (21°C in the living room and 18°C in the other occupied rooms). The objective of the strategy was to end fuel poverty for vulnerable households by 2010. Households particularly vulnerable to the health consequences of fuel poverty were to be first targeted, and included those with elderly, children, disabled or with long-term illnesses. In 2000, there were 3 million such households, estimated to account for 85% of all the fuel poor in the UK.

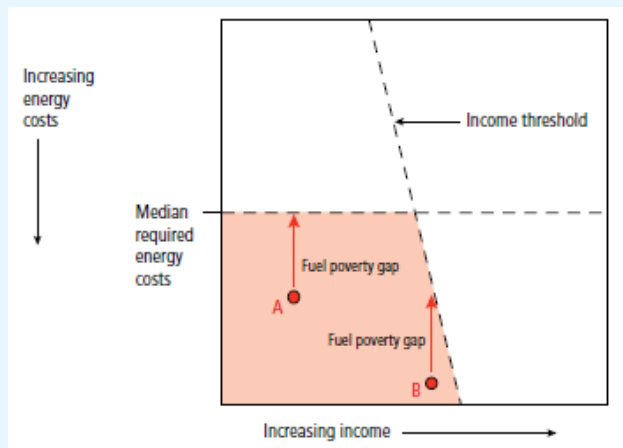
This definition of fuel poverty was reviewed by Professor John Hills, who outlined an alternative definition of fuel poverty in his report for Government Getting the measure of fuel poverty (Hills 2012). He first set out the problematic

nature of the current definition; firstly, that it is too sensitive to energy price changes (as it compares the ratio between household energy spending and their income against a fixed threshold). Secondly, it tries to capture both key elements of the problem - its extent and depth.

Two new separate indicators were proposed, one measuring the extent of the problem known as *Low Income, High Cost* (LIHC). Individuals and the households they live in (both are tracked) are fuel poor based on two criteria – i) fuel costs above the median level, and ii) net of fuel cost spend, their residual income is below the official poverty line.¹⁸ The second indicator is the depth (or severity) of the problem, known as the ‘fuel poverty gap’. This is defined as the extent to which assessed energy needs of fuel poor households exceed the threshold for reasonable costs.

The figure below illustrates the indicator set. The extent of the problem is as per the shaded area, while the fuel poverty gap (for a given household e.g. A and B) is the additional spend required between actual spend and necessary spend to ensure a household is no longer fuel poor. A key feature of the fuel poverty gap indicator is that it can help identify households in the most severe fuel poverty.

LIHC Indicator showing extent and depth of fuel poverty (source: Hills, 2012)



The indicators provide some useful insights into the scale of the problem in England, and can also be compared to the previous metric used. The new LIHC metric shows a stable trend compared to the v-shaped trends based on the previous metric,

¹⁸ Income is calculated on an ‘after housing costs’ (AHC) basis (deducting mortgage, payments, rent) and equivalised to account for the composition of the household.

which is strongly affected by changes in energy costs. The stable trend, with fuel poor households at 2.7 million, highlights the two key but opposing drivers – on one hand, energy efficiency efforts in low income households offset by rising energy costs. The fuel poverty gap in 2009 was estimated at £1.1 billion, which is an average £414 per fuel poor household. It is about 75% higher than it was in 2003, when energy costs were much lower.

Only England applies the new LIHC indicator (DECC 2014b), with devolved administrations continuing to use the 10% metric. Further information on the different strategies and metrics used in the UK can be found in the UK country report, and are listed in Table 6. Preston et al. (2014) summarise some of the relative strengths and weaknesses of the two types of metrics.

Metric	Strengths	Weaknesses
10%	<ul style="list-style-type: none"> + Simplicity (in calculating and communicating). + A fixed threshold and target. + Covered the four dimensions: income, energy efficiency, price and occupancy. 	<ul style="list-style-type: none"> - Overly sensitive to fuel price changes - Potential for higher income households to be defined as fuel poor somewhat misleadingly.
LIHC	<ul style="list-style-type: none"> + Less sensitive to fuel prices. + Focuses policy efforts on energy efficiency. + Prompted a new fuel poverty strategy and target for England. + ‘Gap’ provides measure of severity of fuel poverty. 	<ul style="list-style-type: none"> - Complex to calculate and describe - Use of the median to set the fuel cost threshold - a benchmark considered too high by some - Moving (relative) measure; implications for political commitment - Inconsistency in approach to measuring fuel poverty across UK

In Ireland, the preliminary measure of energy poverty, the 10% metric, enables the estimation of the overall extent of energy poverty in Ireland. However, in practice, some social groups are likely to be more severely affected by energy poverty than others. As a result, the core indicator is complimented with supporting indicators which capture the severity of energy poverty in terms of households that are most critically affected.

This is deemed important in order to prioritise and target measures and resources at households that are most in need (DCENR 2014).

In addition to the core metric, an indicator of severe energy poverty is used whereby a household is considered to be experiencing severe energy poverty if, in any one year, it spends more than 15% of its disposable income on energy services in the home. Also an indicator of extreme energy poverty: whereby a household is considered to be experiencing extreme energy poverty if, in any one year, it spends more than 20% of its disposable income on energy services in the home.

Applying these sets of energy poverty measures, it is estimated that some 317,000 households were experiencing energy poverty in 2009, equivalent to over one-fifth or 20.5% of all households in the State. Of this total, it is estimated that over 151,000 households were experiencing severe energy poverty while over 83,000 were experiencing extreme energy poverty. These figures may underestimate the numbers in energy poverty, as some households under-heat their homes relative to international guidance on healthy standards of comfort.

It is worth noting that Irish Government plans, over the next 3-5 years, to move towards a comprehensive data-collection and modelling framework which will enable more precise measurement and assessment of energy poverty on an ongoing basis.

Finally, the French approach developed by the National Observatory of Energy poverty (ONPE) recommends to take into account three types of indicators:

- the Energy Effort Rate (EER, or TEE in French) (ratio between energy expenses and income of the

household), which should not exceed 10%^[1], reduced to the first three income deciles, which mitigates the volume effect

- the LIHE (BRDE in French) indicator, which considers that a household is in a situation of energy poverty if the two conditions of low income and high energy expenditures are met
- the “Cold Indicator” which relies on testimonials regarding the level of thermal comfort or the extent of budget constraint, the National Housing Survey also includes a question on the level of comfort, also called (INSEE, 2011, p. 2). This indicator is a useful complement to the monetary approaches aforementioned.

However, this approach has not yet been put into practice. The ONPE has committed to address this issue with a new database supported by recent data (Family Budget Survey conducted in 2011, National Housing Survey and Phebus Survey on Energy Efficiency 2014). Rather than having one single indicator, some stakeholders argue that indicators are complementary: the TEE is relevant for preventive measures on energy efficiency of the building aimed to decrease the share of energy expenditure in a households’ budget, while the BRDE might be more adapted to curative measures aimed to improve their solvency (Crémieux, 2014). The consolidated sum (excluding overlaps) of the three main indicators available indicates that 5.1 million households and 11.5 million individuals live in a situation of energy poverty, which comprises 20% of the population (ONPE, 2014, p. 19).

^[1] In 2006, this ratio was 4.3% taking into account domestic energy use. In 2012, an average household spent an average 1,702 €/year for domestic energy and 1,502 € for fuel, which accounted together for 8.1% of its total spending (Ministère de l'Ecologie, du Développement Durable et de l'Énergie, 2014).

Table 8: Issues to consider in developing national energy poverty definitions and metrics

Consideration	Description
1. Purpose	<p>It is important to distinguish between high level indicators that measure the country-scale problem, and local level indicators that help target households. For example, in Northern Ireland, the 10% metric identifies the policy challenge, GIS-based algorithms are then used to target specific areas, and finally professionals are then needed to identify specific households, again based on proxies (Liddell & Lagdon 2013).</p> <p><i>[The considerations below focus on high-level national indicators]</i></p>
2. Broad metric type	<p>A further decision considers the type of metric. As discussed earlier, the broad categories include consensual versus expenditure-based metrics. To a large extent, this will be dependent on data availability, and the requirements of the metric. This is fundamental as it is not useful developing metrics that can not be operationalised.</p> <p><i>[The considerations below focus on expenditure-based metrics]</i></p>
3a. Fuel expenditure thresholds	<p>Nationally appropriate expenditure thresholds need to be considered, with 10% specific to the UK situation. For example, the twice median expenditure in Northern Ireland is at 18%, potentially leading to overestimation of prevalence (Liddell et al. 2012). The general consensus is that the twice-median expenditure should be used, not the mean.</p>
3b. Fuel expenditure type – relative versus absolute	<p>The original UK 10% metric could be considered absolute, while the LIHC uses a relative expenditure measure.¹⁹ A relative measure makes it difficult to eradicate fuel poverty but can still measure progress in regard to the severity of the problem. Absolute measures can be sensitive to shifts in energy prices.</p>
3c. Fuel expenditure type – actual versus required	<p>Best practice suggests that required expenditure should be used, due to under-spending on energy in energy poor households. However, this has to be balanced against available data; actual expenditure is often available from household budget surveys while required expenditure requires data intensive modelling.</p>
3d. Fuel expenditure coverage	<p>In most metrics, all household energy is included. This is important to reflect total expenditure on energy consumed. This means coverage beyond electricity and gas, and removes the focus from heating only to all energy services.</p>
4. Household income	<p>There are considerations around whether income should be equivalised, and what it should include. Moore (2012) notes that the omission of housing costs is self evident. He states that <i>households cannot spend their housing costs on fuel, any more than they can spend the national and local taxes which are specifically excluded from income.</i></p>

¹⁹ Criteria are classified as “relative” when the condition of one household is compared to the conditions of other households, and “absolute” when the condition of energy poverty of one household doesn’t depend on the conditions of other households.

While there have been a number of studies that have considered different metrics (see the German and Italian country reports, Thomson 2013), few countries have operationalised these metrics. It will be interesting to see what impact the range of metrics have on the problem of fuel poverty – for example, can the LIHC in England help eradicate severe energy poverty (with the necessary policies and financial resource in place)?

What is apparent is that this is a complex area. There is a danger that this complexity means that Member States do not act. At the minimum, energy poverty should be recognised – and careful consideration then given to the definition / metrics needed to address it.

IV.A.5. Additional perspectives relevant to energy poverty definition

In determining definitions, it is important that different stakeholder forums continue to consider how to address these issues, in turn helping develop policy in this area. A good example of collaborative effort to address the challenge of energy poverty occurred in Austria, which sees an annual conference bringing together key stakeholders and discussing possible definitions and exchanging experiences around the effectiveness of various measures.

An official definition is still lacking at the government level, but this type of cooperation between researchers and the practical implementers (NRA and non-profit organisations) ensures that once the definition is set, measures to assist households in tackling energy poverty would already be underway to pave the way for further implementation. An analysis of how the legal basis for this type of “social dialogue” process can function is provided in ECS (2013).

Concerning defining energy or fuel poverty, another interesting perspective is found in the case of Bulgaria (and may be applicable to other Member States that have a higher share of their population at risk of poverty). The issue is whether energy poverty can be deemed a distinctive issue for which distinctive policies should be developed, in the case where a large proportion of society is in poverty. The focus of the Bulgarian Government is on social support for those experiencing poverty, ensuring minimum subsistence levels, but as there are no comprehensive criteria of eligibility for the support schemes, so that the effects of such measures are generally limited. According to a recent estimate, only one third of the 670,000 households living below the poverty line received social heating assistance in the winter season 2012/2013, and the amount of the money given was relatively small (33 Euro) (Peneva 2014).

The Bulgarian case seems then to suggest that the decoupling between the concepts of ‘poverty’ and ‘energy poverty’, and the recognition of the second concept as an independent and specific issue, makes little sense when the national socio-economic indicators are well below the EU average. That is not to say that various measures that reduce energy costs should not be promoted, particularly through energy efficiency programmes, and other relevant measures.

It is also evident that no definition of energy poverty includes forced mobility. Even though some Member States have budget support measures intended to cover transport expenditures of low-income people, such measures have not been collected in the framework of this study, as they are not usually reported by Member States under energy poverty alleviation or vulnerable consumer protection. However, in a 2013 opinion, the EESC noted that

“Mobility is also an issue that affects the budgets of households often living far away from city centres and for whom transport dictates where they work. This affects the elderly, single parent families, the unemployed, those on welfare benefits, etc. It has a number of consequences: limited mobility has repercussions on employment, [...] and often leads to [...] social and geographic isolation” (European Economic and Social Committee, 2013)

A comprehensive view of energy poverty would then require taking this dimension into account. This position is defended by more and more stakeholders, as for instance the French National Statistical Office (see Box 3). On the contrary, other stakeholders point out that mobility expenses are very dependent on fuel prices which are by essence volatile, and therefore prevent any systematic corrective measure (Energy-Control, 2013).

Box 3. Definition of “energy vulnerability” including mobility aspects, France

In January 2015, the National Statistical Office (INSEE) proposed an evaluation of energy vulnerability which extends the concept of energy poverty to mobility aspects. Energy vulnerability is defined as a situation when the Energy Effort Rate (or EER, the ratio between energy expenses and household’s income) is more than two times the median EER, excluding the richest vulnerable households. It looks at “constrained” energy expenses. For domestic uses, this covers heating, hot water and ventilation while “constrained mobility” is understood as fuel expenses covering trips to work/study places and for health, administration or purchase reasons (INSEE, 2015).

Compared to the legal definition of energy poverty in France, this new concept of energy vulnerability has the advantage to include mobility and to be correlated to objective metrics. While it has for the time being no vocation to be translated into law, this approach goes in the direction also proposed by the French National Observatory of Energy Poverty.

According to this 2015 INSEE study, 14.6% of

French households live in energy vulnerability with regards to residential energy consumption (namely heating, hot water, and ventilation), 10.2% with regards to mobility, and 22% for one or the two items, which corresponds to 5,9 million households (Cochez, Durieux, & David, 2015).

The next section considers the type of measures deployed in different Member States, and considers how the policy focus and types of definition used have influenced this.

IV.B. Measures to protect vulnerable consumers and tackle energy poverty

The core focus of this analysis has been to review measures undertaken across different Member States to protect vulnerable consumers and in some cases address energy poverty. A full description of measures by Member State is provided in the country reports accompanying this report, while a full listing is provided in Appendix II.

It is important to first identify what constitutes a measure to be included in this review. In the main, measures include those that explicitly provide additional consumer protection to vulnerable groups, and have some targeted aspect to improve building fabric (and therefore reduce energy use), provide additional information or support, or financial relief in the payment of energy bills.

However, measures have also been included that are not explicitly targeted but rather support vulnerable consumers and energy poor by their nature. Examples include measures improving energy use in social housing, improving access to information on tariffs, social welfare support, and disconnection protection. Without including the broader set of measures, we are at risk of

underplaying the important role of non-targeted measures, particularly in those countries who do not explicitly recognise the issue of energy poverty.

Measures have been categorised under the following sub-headings –

- Financial interventions. Such interventions are introduced to support payment of bills. In the main, such measures focus on short term relief.
- Additional consumer protection. These are specific measures that provide protection for consumers using the retail markets.
- Energy efficiency. Such programmes target improvements to the efficiency of building stock, or energy using appliances.
- Information provision & raising awareness. These measures improve understanding of consumer rights and information on market tariffs and energy saving measures.

For each measure, a range of information has been gathered, including the type of implementation mechanism, delivery

institution, extent of targeting, effectiveness (where possible to assess) and time horizon (whether addressing structural or acute problems). Over 280 measures have been reviewed across all Member States, as per the criteria listed in Appendix III. Of these, 40% were identified as being specifically targeted on vulnerable consumers or those in or at risk of energy poverty.

IV.B.1. Financial intervention (e.g. bill support)

Over 40% of Member States use financial intervention measures as the **primary basis** for support to vulnerable consumers. By primary basis, we mean that this is the stated or implied means (via definition used or measures proposed) of tackling the issue. From our review, 20% of the total measures are aimed at the provision of financial support to different socio-economic groups. A further subdivision of measure type is shown in Figure 10, showing wide spread use of support through social welfare system.

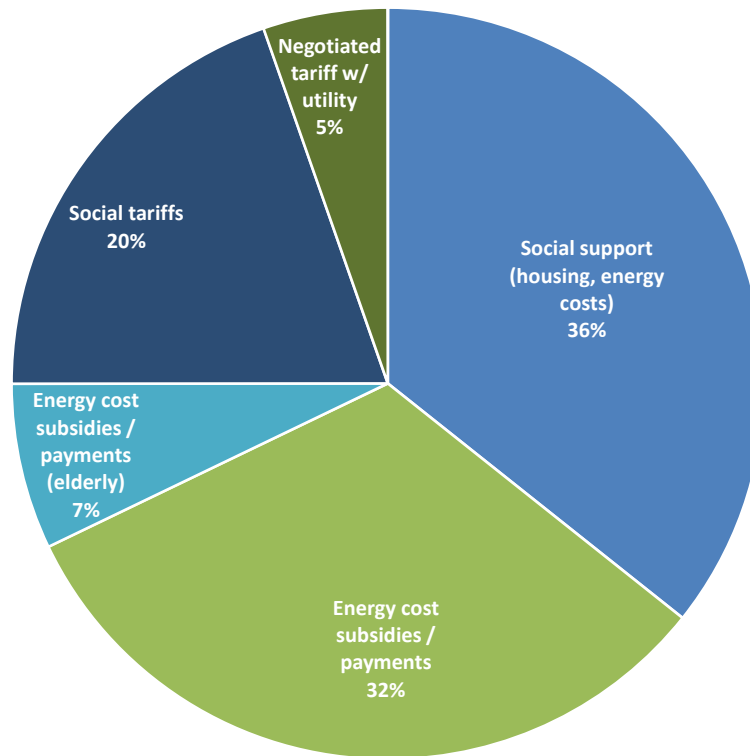


Figure 10: Share of different measures in the category financial intervention

In the main, implementation is via central or devolved (regional) government, as it is about the provision of additional funding, often from social welfare budgets. These types of measure are also aimed at providing relief on the costs of energy, rather than addressing the underlying structural problems of why groups in society cannot afford household energy.

For many Member States, social support is both a primary means of identifying vulnerable consumers and providing additional support. This reflects the ‘social-policy’ led orientation of many Member States on this issue, as highlighted earlier. Support is either provided via general social welfare payments or through direct payments to help cover the cost of energy. Most energy cost subsidies or payments are targeted via the social security systems, and in some cases specifically at the elderly (in the UK, Denmark and Sweden).

In a number of countries, particularly Southern European Member States, social tariffs are also offered, and include, Cyprus, Spain, France, Greece, Portugal, as well as Belgium. Social tariffs are a set tariff available to vulnerable consumers to ensure that these households have access to energy at fair prices. In Belgium, all electricity and gas suppliers are required to offer a social tariff to protected customers. The service charge is waived and a maximum per unit charge is not allowed to be exceeded.

Social tariffs raise important questions of targeting and equity of financial interventions. The Belgium social tariff is granted to all protected consumers, as status given to a household if one of its members belongs to given social categories: beneficiaries of basic income support for poverty alleviation, handicap, elderly people or foreigners, and people living in particular social dwellings with gas heating. The efficiency of the system is

criticised by stakeholders for taking into account the social status of one member only and not the global income of the household.

Eligibility to the French social tariffs is based on the attribution of medical and health insurances, but as a substantial share of consumers eligible to these mechanisms do not receive them²⁰, they cannot be detected by the system (ONPE, 2014). In addition, even when the tariffs reach their beneficiary, their volume (in average 8€/month if gas and electricity are considered) is too low to provide a substantial support. This led the French Energy Agency ADEME to recommend to replace social tariffs by a lump sum and to broaden the range of data on beneficiaries in order to improve targeting (ADEME, 2013). Finally, social tariffs are only applicable to gas and electricity, and unfairly favour households heated by gas²¹, even though gas prices have increased by 50% in the last five years (Fondation Abbé Pierre, 2014). Moreover, social tariffs inherently induce a double penalty effect with people just above the eligibility threshold being excluded for the tariff and having to contribute to its funding.

There is a question in some Member States as to whether the social security system is the best means of targeting vulnerable or energy poor consumers, or indeed the use of other criteria, such as pensionable age. For example, the provision of winter fuel payments to the elderly in the UK has long been viewed as a relatively blunt means of providing extra support to those who actually need it. This issue of targeting is further

illustrated by a case study from Croatia, in Box 4.

Box 4. Ordinance on reducing the impact of the increase in electricity prices, Croatia

During the second part of the last decade, Croatian consumers experienced a rise in electricity prices. In response, the Government adopted an Ordinance on reducing the impact of rise in electricity prices, implemented from July 1, 2008 until June 30, 2011. In the scheme, the Government compensated households for the increase in electricity prices by covering a portion or the entire price increase.

- For households consuming less than 2,000 kWh of electricity annually, the Government compensated for the entire cost increase, which means that they not experience an increase in electricity bills;
- For consumers consuming between 2,001-2,500 kWh annually, households were covered for only 5% of the increase in electricity costs;
- For those consuming between 2501-3000 kWh annually, 10% of the increase in electricity costs was covered.

No ex-ante or ex-post analysis was officially performed to determine the success of this measure. Nevertheless, based on the electricity consumption data of Croatian households, one can deduce that the proposed measure did not have the desired outcome. In particular, the measures helped affluent rather than socially vulnerable customers. Lower income households tend to consume much more electric energy due to a range of factors such as: larger households, less efficient appliances, lower quality of dwellings resulting in higher energy needs and greater reliance on electricity for heating. In the end, the proposed measures helped small affluent households (e.g. young professionals), and owners of country houses, or very small business owners (craftsman who run their businesses as individuals and not as legal persons).

How financial assistance is provided is also important, particularly in terms of take-up and access. Some measures require consumers to be proactive while others are paid directly as part of a social welfare package. For example, in Malta, a subsidy distribution system is in place, which was recently revised. While the

²⁰ 15 -20 % for CMU-C, 60 % for ACS

²¹ This is partly justified. In France, among people with gas heating, 42% are vulnerable. Still, most of vulnerable people use heating oil (1.7 million) (Cochez, Durieux, & Levy, 2015). A subsidy was created in 2005 for households using heating oil but was cancelled in 2009. On the contrary, people with gas central heating can benefit of the two social tariffs, on gas and electricity.

criteria for qualifying for energy benefits remained the same, households are now able to benefit from a credit on their energy bill instead of claiming vouchers. This improved method ensures that more households are able to actually claim the benefits for which they were eligible. Previously, based on the voucher system, €500,000 went unclaimed annually. Under the new system, the 26,000 households eligible for energy benefits (due to low income or high energy consumption due to medical reasons, as well as some social organisations) will now receive a credit to their bill through their service provider (M.I., 2015)

In conclusion, financial measures that provide assistance in the payment of energy bills offer important support to vulnerable and low income consumers. The structural issues that often entrench energy poverty may take many years to address, and, therefore, short term actions are important.

Two important points emerge for further consideration – i) should financial assistance be better targeted? and ii) are other measures being introduced that will allow for a reduction in reliance on financial assistance?

Concerning the first point, the increase in administrative burden from additional or more specific targeting often makes it easier to apply measures using a blanket approach, which might also be simply more relevant given the various profiles of vulnerable consumers with regards to energy. The energy check proposed in France as part of the Law on National Commitment in Energy Transition corresponds partially to this logic to apply a partial blanket approach (see Box 5).

Box 5. Energy check, France

Proposed by the National Energy Mediator, this measure would target all households under a certain income threshold regardless of the energy source used in their home (unlike current social tariffs which only apply to gas and electricity, and

target consumers on the basis of their eligibility for subsidies for health insurance).

Households would have the possibility to use the check either to pay their energy bills or to conduct energy performance work. This is certainly a step forward in an integrated approach of energy poverty (curative and preventive), even though a full integration would have included the possibility to use the check for mobility expenses.

Although the income criterion facilitates the allocation of the check and broadens the range of the beneficiaries, it imperfectly solves the targeting issue of vulnerable consumers, as long as additional criteria based on dwelling type/mobility patterns are not taken into account. This measure is included in Article 60 of the Energy Transition Law still debated at the Parliament.

The second question is also critical. Other measures tackling structural issues of energy poverty are needed, to reduce the provision of short term assistance and increase resilience to the risk of energy poverty in future years, particularly given energy price volatility and recessionary pressures. This has been seen in some Scandinavian countries and the Netherlands, who have social policy-led approaches, where a strong emphasis has been put on the energy efficiency of the housing stock, including social housing, as was described in the FinSH research initiative in Appendix IV.

IV.B.2. Additional consumer protection (e.g. prohibit disconnection)

While financial intervention is primarily led by central government, consumer protection measures are implemented primarily by the regulator and utility companies. Of the Member States reviewed, 20% have disconnection safeguards as their **primary measure** for protecting vulnerable consumers. This category accounted for 27% of total measures reviewed in this study. As

shown in Figure 11, over 40% of the measures reviewed relate to protection against disconnection. Approximately 80% of Member States have some form of protection from disconnection due to non-payment, with Bulgaria, Croatia and Czech Republic being

exceptions. Some protection measures are specifically targeted on different groups, during the winter or provide blanket protection.

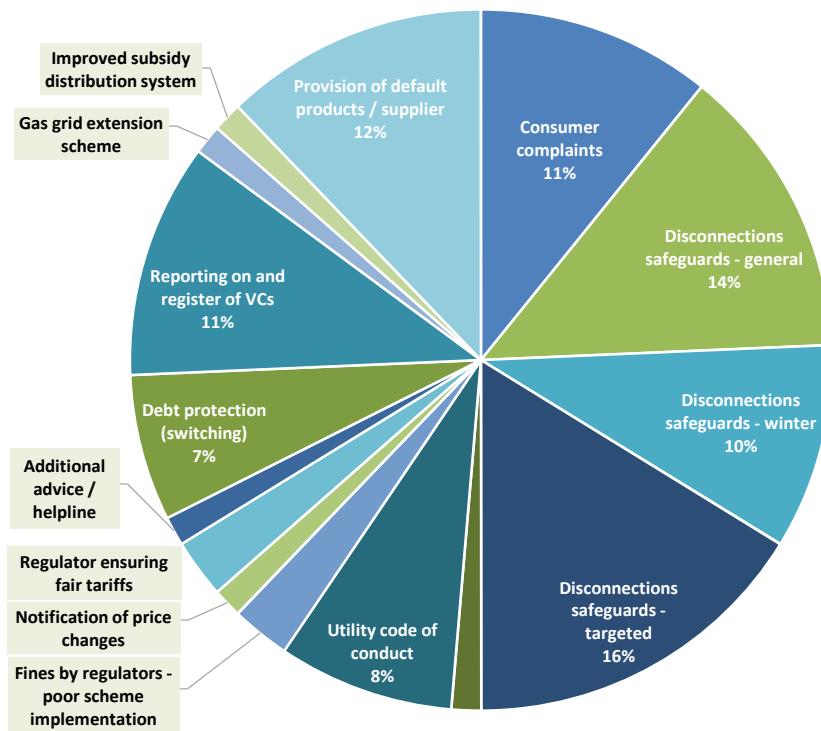


Figure 11: Share of different measures in the category consumer protection

In addition to the disconnection safeguards, a number of Member States have specific measures to protect consumers who are in debt, allowing for switching to other suppliers even if indebted (DK, FR, LU, UK).

The range of measures also highlights the important role of the energy companies, working alongside the regulator, in ensuring consumer protection, including the issuing of codes of conduct in dealing with customers (BE, IE, LU, SE, UK), reporting on and registering vulnerable consumers (FR, GR, UK), and provision of additional customer assistance.

Of all the categories, this is the most heterogenous (ignoring the role of

disconnection protection), with a range of measures specific to given countries. In the UK, there is a grid extension scheme, where network operators are incentivised to extend the gas distribution grid to rural homes. In other Member States, the regulator has the important role of ensuring fair tariffs, monitoring company profits, and fining energy companies for underperforming on specific scheme implementations.

Based on our review, it is evident that a range of consumer protection measures have been adopted by different Member States with most having some provision for protection from disconnection. The overview provided in this study could form a useful basis for Member

States sharing ideas concerning how vulnerable consumers can be further protected. Clearly, there is a strong role for both the energy companies and regulators in providing these protections. For Member States at earlier stages of market liberalisation, such measures may become more important as energy markets become increasingly liberalised.

IV.B.3. Energy efficiency interventions (e.g. targeted retrofit programmes)

All Member States have a range of energy efficiency measures being implemented. Many are not specifically targeted on vulnerable consumers or low income households at risk of

fuel poverty; however, despite lack of targeting, they have the potential to reduce energy costs for all households with long-term effects, include those consumers who are more vulnerable to energy poverty.

Based on our review, 30% of Member States' approach to tackling vulnerable consumers and / or energy poverty focuses on the use of energy efficiency programmes. Of the 90 measures reviewed, 65% relate to building retrofit measures of different types (Figure 12). Of these, approximately 30% are targeted, and tend to be implemented in those countries which are classified as 'energy policy led', (although this is not the case for all Member States).

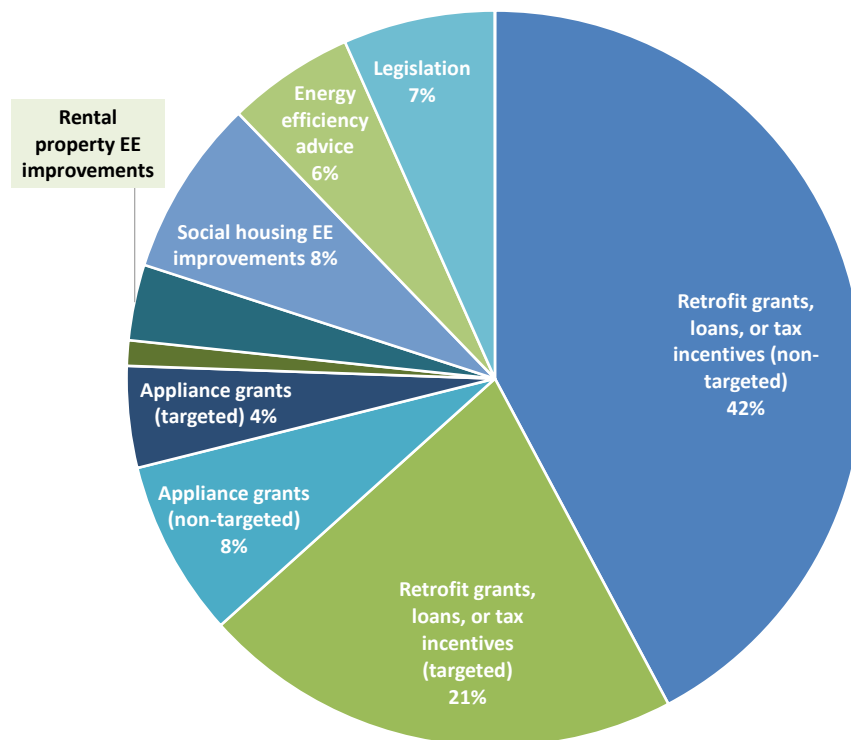


Figure 12: Share of different measures in the category energy efficiency

A range of different types of energy efficiency measures are used across Member States, and a selection of key measures summarised in Table 9.

Table 9: Key energy efficiency measures in selected Member States

Member State	Measure	Description	Implemented / managed by	How targeted
Belgium	Energy savers (<i>Energiesnoeiers</i>) project	The energy scans are carried out by <i>Energiesnoeiers</i> (lower educated & long-term unemployed people, trained to implement energy saving interventions) who undertake a screening of the energy situation of a household, in which the household receives energy saving tips and energy saving devices (such as pipe insulation or light bulb). Energy scans are ordered by the DSOs, which are required to carry out 25,000 free energy checks per year (~1%) as part of their public service obligations. These 'social auditors' can act as intermediaries between tenants and owners, encourage energy saving behaviour, and inform about support mechanisms.	Managed by KOMOSIE, the Federation of Environmental enterprises in the social economy; Local Authorities; DSOS	Since 2014 this project only targets low-income households.
Croatia	<i>Energy efficiency and use of renewable energies for households.</i>	Households implementing energy efficiency measures and use of renewable energy (for heating, preparation of hot water) receive investment subsidies. Fund subsidizes more than 80% of total investment in energy efficiency measures.	Local government but funded by the Environmental Protection and Energy Efficiency Fund	Households with the most potential for energy savings are given a priority, so not solely targeted at vulnerable consumers. However, they are likely to benefit living in properties that are less efficient on average.
France	<i>Habiter mieux</i> programme ("Living better")	Since 2010, this 7-year programme offers grants to tenants engaging in thermal renovation works, under strict conditions of income and expected efficiency gains (renovations must improve energy efficiency by at least 25%).	Central Government - National Housing Agency "Agence Nationale pour l'Habitat" (ANAH)	Landlords; Housing associations; Specific socio-economic groups
Germany	Stromspar-Check (Energy-savings-check for low-income households)	Long-time unemployed persons are trained to provide low-income households with an energy saving consultation and install energy saving fittings for immediate energy savings; project proposal with purpose of reducing impact on environment, saving CO ₂	Caritas: funded through the Environment Ministry (BMUB) with support from Federal agency for energy and climate protection of Germany (eaD)	Low income households (e.g., recipients of unemployment, social, housing benefits, additional child benefits, elderly)
Ireland	Better Energy: Warmer Homes	Focuses on assisting people on low incomes, living in private/non-local authority homes, who receive the National Fuel Allowance, invalidity benefit or disability benefit.	Sustainable Energy Authority of Ireland	As per description.
UK	Energy Companies Obligation, or ECO (under Green Deal)	Energy suppliers are required to support the delivery of measures in 'hard to treat' households (savings from measures are less than the Green Deal charge) and amongst low income households. Part of the broader energy efficiency scheme, called the 'Green Deal', is designed so that energy efficiency measures can be paid for by the resulting savings on energy bills.	Introduced by DECC (energy ministry) but implemented by energy supply companies	Proxy indicators, including social benefit recipients / low income area determination.

Energy efficiency measures differ significantly in terms of what they offer to the consumer, how this is done (implementation mechanism), who implements them, and how they are targeted. All reflect the different policy approaches and political realities in different Member States. The following case study outlines some critical assessment of how energy efficiency measures have been targeted in the UK – and what improvements could be made (see Box 6).

Box 6. Improving the effectiveness of energy efficiency schemes for addressing fuel poverty in England (UK)

A number of commentators have questioned the effectiveness of current energy efficiency measures in relation to tackling energy poverty. Platt et al. (2013) highlight that the ECO scheme (under the Green Deal initiative) is poorly targeted at the fuel poor, due to the use of inappropriate proxy indicators, including type of social benefits received or living in deprived areas. They estimate that only 47% of fuel-poor households benefit from ECO's provisions for low income households, while 80% of the ECO funds spent every year (£433 million of £540 million) go to households that are not fuel poor.

They also highlight that it is bad for competition, because it puts large energy companies in full control of contracting and delivery of energy efficiency improvements. There are also concerns that the current ECO approach leads to a conflict of interest, where interests of energy companies and fuel poor consumers do not necessarily align (Preston et al. 2014). There are some concerns that energy companies may not carry out higher cost energy efficiency measures, and indeed that a fine from the regulator (where a target is missed) may be economically more attractive.

Platt et al. (2013) propose an alternative 'Help to Heat' programme, improving energy efficiency and more effectively addressing fuel poverty. Baker (2014) sets out the main focus of the programme – Decentralising the delivery of energy efficiency programmes by moving them away from fuel companies and towards local contractors.

- Systematic, 'house by house' assessment in concentrated geographic areas.
- Free assessments to all households regardless

of their financial circumstances.

- Free grants to 'fuel poor' households and low or zero interest loans to all other households to pay for improvement works.

Platt et al. (2013) estimate that current resources going into ECO, used in an alternative scheme could deliver more, with –

- One million more low-income households would receive a free energy efficiency assessment every year, and encouraged to take out a low-cost Green Deal loan (which would be a more attractive offering than currently available through lower interest rates)
- 70% of spending on low-income households would be used for energy efficiency improvements for the fuel-poor (20% at present)
- 197,000 fuel-poor households would receive efficiency improvements every year (117,000 more than under ECO)
- Average bill savings for fuel-poor households would be in region of £230
- Large economies of scale using this local approach would reduce the cost of energy efficiency measures.

Preston et al. (2014) highlight that a number of commentators consider area-based schemes as a useful way to develop policy in this area, particularly because they can be proactive (do not wait for self-referral), delivered by (more trusted) local organisations, and can achieve economies of scale by focusing on entire streets. A recent analysis by Howard (2015) suggests that re-direction of current funding towards fuel poor households could bridge the necessary gap to meet the proposed government target on fuel poverty, to get all households to EPC level C (as outlined earlier). This proposal is in view of additional funding being difficult to generate in the current economic climate. With an estimated funding gap of £700 million for England, all ECO funding and re-direction of winter fuel payments could close the gap, providing the necessary funding levels.

Two other sets of important measures emerge from this review, firstly, those targeted at improving energy efficiency in the social housing or rental market housing stock, and secondly the provision of grants and loans specifically for energy efficient appliances.

Measures targeted at the rental and social housing stock are being implemented in France, the UK, Denmark and the Netherlands, with diverse success rates in targeting vulnerable consumers, as described for France in the example of the *Habiter mieux* Programme (see Box 7).

Box 7. *Habiter Mieux* “Living Better” Programme, France

The *Habiter Mieux* programme was created in 2010, with the aim to complement existing financial incentives for energy renovations and to specifically target low-income households. Supervised by the National Housing Agency (ANAH) and managed at sub-regional level (“département”), this 7-year programme is co-funded by public funds (83%) and utilities (17%). Endowed with a total €1.45bn budget, this scheme concomitant with the entry of the definition of energy poverty in the legislative framework gave the strong signal that public authorities recognised the need to launch preventive action specifically focusing on vulnerable consumers. However, the scheme was only a mixed success and the reasons for that are quite illustrative of the difficulties of designing efficient policy instruments to tackle energy poverty.

First, the consultation foreseen in 2011 to develop a better targeting strategy never took place, and during 2010-2013 grants were primarily allocated to households in rural areas who, for most of them, were also owners. The Programme has therefore so far insufficiently targeted tenants. Second, concerned with the achievement of its objectives (targeting 300,000 households by 2017, while only 50,000 renovations were funded in 2010-2014) the ANAH decided in 2013²² to extend eligibility to co-owners and non-occupant owners, and to lift the resource ceiling up to the median income. This resulted in making 46% of landlords eligible, so this extension of the scheme has diverted most of the funds towards middle-class households to the detriment of the lowest-income ones (Crémieux, 2014, p. 4).

Third, a report delivered to the Ministry of Housing in 2014 points out that after receiving the grants, 37% of very modest households and 49% of modest households still have more than €5,000 to contribute for financing renovations (Redouin, Baietto-Besson, & Chapelon, 2014).

Fourth, with an average efficiency gain of 38% after renovations, which is beyond the 25% imposed threshold, *Habiter Mieux* could be considered successful from an energy efficiency point of view. However, stakeholders point out that in the absence of obligations to conduct a set of renovation work, renovations often result in the improvement of one single appliance or structure, without overall household energy efficiency gains.

The FinSH research initiative described in Appendix IV, also conducted a detailed assessment of different existing and potential financial mechanisms targeted at the social housing sector in France, Germany, Italy, Poland and the UK.

Another interesting measure focused on social housing is the Energy Saving Covenant and the *Energiesprong* (Energy Leap) programme used in the Netherlands, which employ very novel approaches to overcoming the landlord-tenant problem (see Box 8).

Box 8. Energy Saving Covenant / *Energiesprong*, Netherlands

Starting in 2008, this measure led to the introduction of energy labels as one of the parameters of the regulated rents in social housing. Only after improvement in energy efficiency could landlords raise rents, to help repay for the investments. A housing cost guarantee also means that housing associations are required to prove that total housing costs (energy + rent) will not increase after the investment. This was an important feature to overcome the split-incentive dilemma between social landlords and tenants.

In 2012, the covenant was reviewed and revised. Importantly, it brings the private rental market into the Covenant. The key objective is to achieve an average Energy Index of at least 1.25 (an average of energy label B) for the total available rental housing of housing corporations in 2020. This corresponds to a saving in the building-related energy consumption of existing housing corporation homes of 33% in the period 2008 to 2020. This ambition concerns building-related and equipment-related energy consumption, especially for heating spaces, hot running water and ventilation. *Vastgoed Belang* [private rental sector] aims to achieve an improvement in the housing stock of its members, leading to a housing

²² Décret n° 2013-610 of 10 July 2013.

stock in 2020 of which 80% are label C or higher.

One such programme that aims to help realise the energy savings goals is Energiesprong (translates to 'Energy Leap'). This is an innovative scheme focused on social housing that aims to fund the investments in retrofit through bill savings, ensuring no net additional cost to tenants. Instead of paying their energy bills, tenants pay a similar amount to the housing associations. Using this money, the corporations pay building companies to retrofit the houses, who have developed 'industrialised' renovation procedures that are highly cost-effective. (The necessary upfront capital comes from the WSW social bank, which has provided €6bn to underwrite government-backed 40-year loans to housing associations).

Key to the scheme is that it is an area-based approach, using retrofit technology that can be introduced rapidly. In the Netherlands, the building stock lends itself to this approach due to its homogeneous nature. A government contract will see 111,000 homes retrofitted, equivalent to an investment of €6 billion.²³

Another important issue highlighted in this review is the importance of energy efficiency programmes in some of the Eastern European countries, where there is a large stock of Soviet-era communal buildings / apartment blocks. Many dwellings fall into the lowest energy efficiency categories and by implementing simple and cheap measures substantial long term savings can be achieved.

In the Baltic countries, many such buildings are supplied by district heating systems. It has long been recognised that such building stock often suffers from poor energy efficiency, and exacerbates problems of energy affordability. As described in Section III, some of these countries have considerable levels of energy poverty.

²³ Based on the following articles - *Zero energy at zero cost: industrialising the building sector*, <http://www.energypost.eu/zero-energy-zero-cost-industrialising-building-sector/>; *Ikea kitchens help sell insulation to Dutch – and UK could be next*, <http://www.theguardian.com/environment/2014/oct/10/uk-looks-to-dutch-model-to-make-100000-homes-carbon-neutral-by-2020>

Several interesting measures being undertaken to retrofit multi-dwelling buildings are cited in the country reports, such as the programmes implemented in Lithuania (as described in the country report (Appendix II). In this context, a retrofit programme currently being undertaken in Hungary is described in the case study in Box 9. This is not targeted specifically at low income households; however, it is a good example of a programme targeted at often inefficient buildings that include lower income households.

Box 9. SOLANOVA - Solar-supported, integrated eco-efficient renovation of large residential buildings and heat-supply-systems, Hungary

SOLANOVA is the first "Eco-buildings" project of the European Commission in Eastern Europe dealing with a "major renovation" of a large existing building. In order to achieve sustainable improvements, SOLANOVA proposes a symbiosis of three strategies:

- design for human needs
- optimized resource efficiency of the building
- optimized solar supply

In 2005, one 7-story-panel-building in the Hungarian town of Dunaújváros was transformed into Europe's first 3-litre-panel-building by consequently applying the passive-house-philosophy to an extent, which was judged to be best practice for retrofit.

Overnight solar energy provided more than 20% of the total consumption for space heating and domestic hot water. Mainly this is due to a drastic decrease of space heating consumption, which was 220 kWh/m² before the retrofit.

- Measured annual space heating consumption 2005/06: 40 kWh/m² - a decrease of more than 80%
- Measured annual space heating consumption 2006/07: 20 kWh/m² - a decrease of more than 90%

The SOLANOVA solution is to be replicated at a larger scale through the MLEI- SOLANOVA project which aims to refurbish 14 prefab socialist panel buildings starting in Budapest district XI (Ujbuda) using the SOLANOVA technology.

It is evident that large potential exists to improve energy efficiency in this type of building stock. However, strong challenges exist in implementing efficiency measures, often given the difficulties in accessing loans, and the need for measures to often be undertaken communally.

IV.B.4. Information and awareness (e.g. dedicated helplines, campaigns)

The final category of measures concerns information and awareness. These include

advice provision, including campaigns, and increased information on bills and tariffs, through price comparison sites and more transparent billing.

Member States with the most liberalised markets tend to be those that have more measures relating to price comparison and transparent billing. They also appear to have greater provision of consumer advice in such countries, although this type of measure is more broadly widespread.

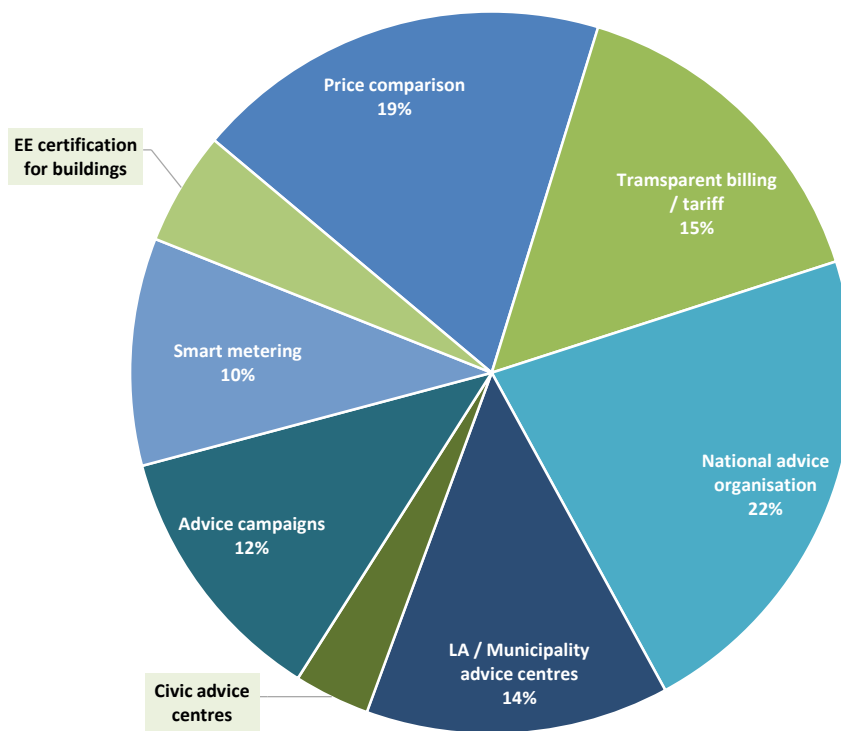


Figure 13: Share of different measures in the category information and awareness

In Member States where there is a strong civic society movement in relation to energy or fuel poverty, the number of awareness campaigns is higher. This is particularly seen in the UK, where many NGOs and energy research organisations are actively campaigning on the issue.

Many Member States are embarking on smart meter roll out programmes (see case study

from Italy in Box 10). This will provide the potential for consumers to better understand how they are using energy but also for energy suppliers to monitor energy consumption, particularly of vulnerable consumers.

Box 10. Smart Metering programme, Italy

Although it is recognized in Italy that fuel poverty is, in some ways, related to technical aspects (energy losses/efficiencies), there is a substantial inability to monitor the energy performances and the minimum energy requirements in a reliable way and with a sufficient geographical coverage, at the household level.

On the other hand, between 2000 and 2005 there was a huge deployment of electric smart meters (the world's largest) with almost a complete coverage (95%) of the customers. More recently (2013) an obligation for the distribution companies (selected according to their sizes), with regard to the installation of gas smart meters, has been introduced in order to force the deployment of meters for domestic customer by the end of 2018.

The presence of smart meters may allow the policy makers to reconsider the design of the measures in order to guarantee a "minimum level of consumption" (compatible with the welfare requirements) to all the households. Minimum standards may be defined "by type of dwelling" and "by areas" and monitored making use of the meters.

It is imperative that smart metering programmes recognise the potential impact on monitoring and assisting lower income households. In the UK, the problem of 'self-disconnection' has been noted as a considerable problem for those on pre-payment meters (Vyas 2014). Due to tight household budgets and the need for savings, households will not always top up their meters (and in doing so self-disconnect).

Another example for the application of smart meters was in Germany, under a pilot project called 1000 Watt Solution, where 660 smart meters were installed in a social housing complex in Germany. The aim was to protect households from being completely cut-off from electricity when they were unable to pay. Households not able to pay their bills had their power demand reduced to 1000 W instead of being completely cut-off from electricity so that a basic energy amount could still be

drawn. This only occurred after households had received three warnings. The fourth warning comes with the reduction in energy demand and an offer for a debt consultation with Caritas, a social, non-profit organisation. The cost of the installation of all the meters was 100,000€ (BEV 2013).

Smart meters may provide the opportunity for energy companies and regulators to better understand this problem, and provide more targeted assistance. It is also important to connect information and awareness measures with energy efficiency and climate change information campaigns. While many schemes primarily conceived as adaptation to climate change initiatives are already in place in most of the Member States to encourage and teach households to reduce their energy consumption, such tools could also be used as information dissemination measures likely to mitigate energy poverty through teaching good practices.

IV.C. Key findings from Member State review

This review has described the state of play across Member States concerning how the challenges of vulnerable consumer protection and energy poverty are firstly viewed, and subsequently acted on.

IV.C.1. Definitions

Key findings

- i. Definitions used for vulnerable consumers vary significantly across Member States, reflecting differences in problem identification and in approaches to action.
- ii. Less than a third of Member States explicitly recognise concepts of energy poverty. Those that do see it as a **linked yet distinctive** problem from vulnerable consumer protection.

Our review highlights the quite distinctive ways in which Member States have both recognised and chosen to address the issues of vulnerable consumers and energy poverty. This is a core argument for the principle of subsidiarity in this area, as it reflects the different approaches taken, and the type of measures implemented.

However, the question is what is the purpose of the vulnerable consumer definition? If indeed it is to address energy poverty, or vulnerability to it, such a goal may need to be made more explicit in the directive. Many of the Member State definitions view the challenge in different ways.

In the Directives (under the Third Energy Package), there is also an implicit assumption that vulnerable consumers are currently vulnerable to energy affordability concerns. However, Member State definitions suggest an important distinction, with many concerning 'socio-economic' vulnerability based on

personal circumstances (age, health conditions, etc.) while others focus on **energy vulnerability** based on other criteria (tenure status, heating system, cost of fuel, winter/summer thermal requirements, etc.). Both types of vulnerability are important but require a different focus of measures. It may be important that the definitions recognize both types of vulnerability.

The latter issue, relating to energy vulnerability also ties into the issues of affordability and energy poverty. A more explicit recognition of energy poverty in the definition would not necessarily determine how energy poverty concerns should be addressed, but it would ensure that all Member States consider such issues in their definition of vulnerability. This provision of greater clarity on who vulnerable consumers are would ensure that the different aspects of vulnerability are considered in definitions.

There is also the question of how targeted a definition should be – should it provide for blanket protection (via provision for those on social welfare) or be specifically targeting those in or vulnerable to energy poverty? While the first option is relevant from a conceptual point of view – it fits the description of energy poverty as a multiform issue requiring an inclusive approach - it might not provide sufficient support to the most vulnerable households and might perpetuate support schemes such as regulated tariffs that EU authorities may rather want to phase out. The second option appears more relevant, but present important challenges of implementation with regards to targeting, as well as possible adverse side effects, such as double penalty mechanisms for non eligible households. Again, this depends on the thrust of what the directive is trying to achieve in this context.

There are a number of Member States who have linked but distinct policy agendas and programmes related to energy (and fuel) poverty. In those countries, the definition of vulnerable consumers can tie in to that of energy poverty (France) or be quite distinct and less prescriptive (UK). Where two definitions are used, and different action emerges, it is necessary that one does not undermine the other.

From the review, it is evident that energy poverty definitions require careful determination. They need to focus on the problem, allow for effective policy making, and be operationalised based on available data.

It is also evident that the scope of energy poverty is not confined to the electricity and gas market, but is prevalent in households that are not on the gas or electricity networks. This includes rural consumers using oil or urban consumers whose housing is linked to district heating systems. Scope not only relates to type of energy but what is meant by energy expenditure, which could be extended to include expenditure on mobility

IV.C.1. Measures

Definitions are critical for orientating action towards the challenges of vulnerable consumers and energy poverty. However, effective action then needs to be developed, in the form of strategies and policy measures. From the review, it is evident that a range of policy measures is required to address these different challenges, tailored towards national circumstances (the policy approach, extent of market liberalisation, and physical characteristics of household energy and building stock).

IV.C.1.i Financial interventions

Key findings

- i. Financial interventions are a crucial means of short-term protection for vulnerable consumers.
- ii. Many Member States use the social welfare system to both identify recipients of support and distribute payments.
- iii. Enhanced targeting of energy-poor needs to be balanced against administrative complexity.

Financial interventions are crucial for addressing affordability in the short term, and can be used to compliment longer term measures that address the underlying structural issues of energy poverty.

For example, in Scandinavian countries and the Netherlands, social support is provided but also significant effort is being put into improved energy efficiency of social housing stock. This integrated approach means that financial support does not become the main policy for ensuring affordability but is rather a transition measure, which remains to ensure a safety net but is not relied upon.

Member States have used many different financial mechanisms, either through social welfare payments, or direct payments to specific groups e.g. elderly, to assist with energy bills. A number of Member States also have social tariffs in place, ensuring that more vulnerable consumers can access the most affordable energy.

In conclusion, it is reasonable to conclude that these types of measures are more focused on short term affordability concerns, and therefore a critical part of the policy approach, but less orientated towards addressing the more structural, long term energy poverty challenge.

IV.C.1.ii Consumer protection

Key findings

- i. This measures category, focused on vulnerable consumer protection, is dominated by disconnection protection.
- ii. Beyond disconnection protection, this category also has a diverse set of measures, primarily coordinated by regulators and energy supply companies.
- iii. Many measures e.g. billing information, codes of conduct, debt protection are often most prevalent in competitive markets

Additional consumer protection measures are particularly important for vulnerable consumer protection (and access) in regulated markets. Therefore, there are particularly strong roles for NRAs and energy companies. They are critical for ensuring that markets operate in a way that does not disadvantage vulnerable consumers, through guaranteeing supply, establishing codes of conduct for market players, and by companies identifying vulnerable consumers.

Social obligation reporting (as used in the UK) ensures that energy companies identify vulnerable consumers – and in doing so can develop a suitable service provision. This could include measures that are more focused at addressing energy poverty e.g. improving building energy efficiency. This shows that there are important links between measures addressing both challenges.

IV.C.1.iii Energy efficiency interventions

Key findings

- i. Our review shows that energy efficiency measures, particularly those focusing on building retrofit, are a key part of a strategy to address energy poverty.
- ii. There is considerable scope for increased targeting of such measures, although this requires an understanding of which are the energy-poor households.
- iii. There are a wide range of approaches to implementation e.g. funding source, extent of

targeting, implementing body. Such factors need to be considered in view of national circumstances.

- iv. There are already well understood barriers to energy efficiency measures. Strong incentives for take-up in low income households are needed, and designed to promote awareness and key benefits.

Our review points to the potential for a much more targeting of energy efficiency measures across Member States, to better address energy poverty, and increase energy affordability for those most vulnerable to higher prices. However, targeting needs to be done in an appropriate manner, as has been highlighted in the UK example. Key aspects that need to be thought through include –

- *How to target?*

Are proxy indicators e.g. social benefit recipients, good enough to ensure those in energy poverty are reached?

- *Who delivers?*

For example, delivery by energy companies may mean retrofits are not provided where most needed, but rather seek 'easier' opportunities to fulfil obligations. There may also be an issue of trust, if indeed an energy supplier is also carrying out retrofit measures. Finally, such programmes have the potential to offer local employment which may not be realised if large utilities are monopolising the market.

- *How to implement?*

Many commentators suggest that area-based (street-by-street) approaches can deliver significant economies of scale, and ensure low income households are identified and retrofitted.

- *How measured and enforced?*

Different proposals in the UK have suggested a minimum efficiency standard

for low income households. If delivered via the market and / or delivered by energy companies, regulators need to effectively enforce scheme targets to ensure progress is made. However, the definition of these targets is critical as well. For example, should a minimum set of measures be offered in order to ensure that renovations result in a significant improvement of energy performance? How should the energy performance be measured?

▪ *How funded?*

This is critical. If through energy bills, this could add to the burden of energy prices on lower income households, while through general taxation could be at risk from budget cuts (particularly in times of austerity). If paid for by homeowners / tenants, loan rates need to be attractive and split incentives overcome (between tenants-landlords), while full grants may need to be considered for low income households. An interesting example is Croatia, where the proceeds from the sale of EU ETS permits are meant to be used for this purpose.

The Netherlands and Scandinavian countries have had strong success in targeting energy efficiency of social housing, which house a higher share of lower income households. Combined with broader social support measures, this has allowed for less targeting of measures. The transferability of such measures is somewhat contingent on the dwelling stock and nature of tenure, e.g. level of social housing stock in some Member States is much lower, with lower income households catered for by private rental markets.

Given some of the apparent energy poverty problems observed in some Southern and Eastern European countries, energy efficiency measures could offer an important opportunity to reduce energy consumption, and improve

affordability, particularly for lower income households. As this study highlights, there are already some excellent initiatives being undertaken that could be further scaled.

IV.C.1.iv Information and awareness

Key findings

- i. Member States with the most liberalised markets tend to be those that have more measures relating to price comparison and transparent billing.
- ii. Where there is a strong civic society movement in relation to energy or fuel poverty, the number of awareness campaigns is higher.
- iii. Greater awareness of energy poverty and how to tackle it could come through the greater use of smart metering.

To allow for strong participation in the energy markets, providing adequate information to vulnerable consumers is critical. Awareness raising of how to increase affordability of energy services is also important. In specific Member States, we see that civic society groups and other non-governmental organisation play a critical role, in both assisting energy poor through various measures but also in pushing the agenda with government. Such campaigns are important for wider recognition and understanding of energy poverty issues.

A potentially important development is the roll out of smart meters in different Member States. This potentially offers, subject to data protection, the opportunity for consumers to better manage their consumption but also energy companies to identify vulnerable consumers. As smart metering becomes more the norm, it will be important to share learning concerning how this technology can help in vulnerable consumer protection and enhancing affordability of energy use.

A key conclusion from our review is that many measures are being implemented across Member States, focused both on vulnerable consumers and on energy poverty. However, these are distinct issues, and are targeted by different types of measures. Measures focused on vulnerable consumers offer protection within regulated markets, and facilitate access and participation. They are often short-term in nature, providing relief or ensuring ongoing supply in the face of indebtedness. Energy poverty measures on the other hand are explicitly focused on lower income households, and seek to address longer term structural problems of building energy efficiency.

Such measures also tend to be implemented by different agencies. For vulnerable consumers, the key players are regulatory bodies and energy companies. For energy poverty, it is usually central Government or national energy agency.

The interface between the different types of measure is that some vulnerable consumer measures focus on energy affordability. Therefore, given this link, distinct strategies do need to be mutually consistent. Such strategies also importantly allow for understanding between different implementing bodies.

We have identified the primary type of measure that different Member States use to tackle the problems of vulnerable consumers and energy poverty. Broadly split into three categories, it highlights that some Member States are mainly focused on vulnerable consumer protection (through disconnection-based measures), seek to ensure affordability via social security, or view the problem from an energy efficiency perspective.

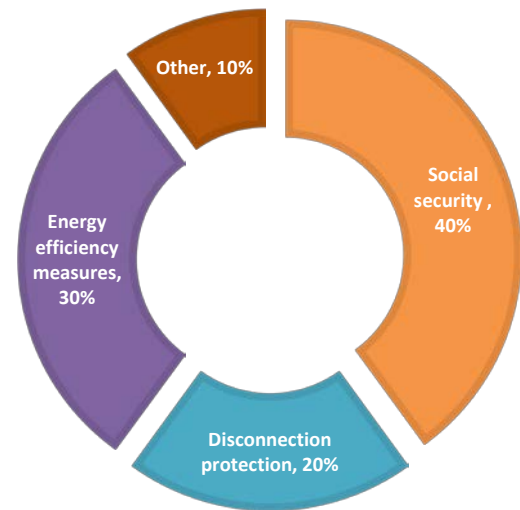


Figure 14: Member States primary measures for protecting vulnerable consumers and tackling energy poverty.

In the next section, we consider what these review findings mean for improving how Member States and the Commission address both challenges. In part, our recommendations are based on learning from good practice across Europe. However, it is also evident that measures are very different according to national circumstances, and therefore we also consider issues of transferability.

V. RECOMMENDATIONS

The following recommendations set out additional actions for the European Commission and Member States concerning how to address the vulnerable consumer and energy poverty challenges.

In particular, energy poverty is increasingly being recognised as a critical problem across Europe, and particularly entrenched in certain Member States. It is therefore important that the Commission and associated working groups, including the VCWG, continue to seek ways to develop action in this area.

Recommendation 1. Recognise that the issues of vulnerable consumer protection and energy poverty are distinct.

It is important to recognise that the issues of vulnerable consumer protection and energy poverty are distinct. The issues can affect different energy consumer groups, and require different measures. Although the different terms are highlighted in the Third Energy Package Directives, it is not made clear that these are distinctive issues that may require different solutions.

The European Commission could take the opportunity of the revision of the regulatory framework set-up by the 3rd Internal Energy Market Package in 2015-2016 (as announced in the Communication on the Energy Union Package) to streamline the dispositions on vulnerable consumers and energy poverty contained in the current versions of the Electricity and Gas Directives. In particular, article 3 (paragraphs 7 and 8) and recital 53 of Directive 2009/72/EC should be amended to reflect clearly the specificities of vulnerable consumer protection (along the lines of consumer protection and curative approaches) and energy poverty (requiring a long-term, preventive approach).

In some sense, if vulnerable consumer strategies are consistent with action to tackle energy poverty, this is welcome. However, it should be recognised that such measures will not be sufficient. Under Recommendations 2 and 3, we believe that greater clarity on this can be achieved. We propose that the Commission encourages Member States to develop distinctive yet consistent strategies for both issues. Such documents are important for demonstrating action in these areas, and for ensuring a good understanding across different government departments and agencies, and at different sub-national levels.

Furthermore, recognising the regional and city-specific nature of the problem, local action could be supported through local or national energy poverty eradication action plans, as recommended by the Energy Cities and EPEE initiatives, respectively. It is important to recognise that much of the current recognition of energy poverty in many Member States is from local action groups and civic organisations.

Recommendation 2. Provide additional guidance on what constitutes vulnerable consumers (based on Member States' experiences).

The Directives under the Third Energy Package require Member States to determine and define vulnerable consumers in the energy markets. Our study highlights the significant variation across Member State definitions. In some Member States, vulnerability is simply those groups at risk of disconnection. We consider that such narrow definitions will not provide broader support to consumers who may have difficulty accessing and participating in the market.

We propose that the Commission is more prescriptive about who constitutes a vulnerable person. This needs additional

consideration (perhaps by the VCWG) but from our review should include persons –

- vulnerable due to their socio-economic circumstances (elderly, disabled, unemployed);
- vulnerable due to their structural circumstances with regards to energy use (heating system, on high tariffs, inefficient building, off-grid).

We believe that vulnerability considerations should reflect concerns of affordability, access and participation. Additional consideration also needs to be given to whether these issues are applicable to individuals or households to better target resources.

We also think that greater prescription of what constitutes vulnerability will avoid Member States only considering measures relating to ensuring supply i.e., emergency measures. Rather definitions should ensure improved access to markets for groups in society who need additional support. Taken in the round, providing this additional guidance should ensure that vulnerable consumer definitions are more aligned with energy poverty concerns, whilst also covering wider vulnerability issues (not related to affordability).

The exact wording of the guidance on definitions could be in an implementing act of the revised Gas and Electricity Directives, as this research has shown that in full respect of the subsidiarity principle, a uniform implementation of vulnerable consumer protection across the EU nevertheless requires a common understanding of who a vulnerable consumer is with regards to energy.

The Commission should also state clearly what is required of NRAs in reporting both definitions and measures through a common reporting format. Some of the reports reviewed by the study team were difficult to

decipher, in regards to definitions and associated actions. At the occasion of the review of the functioning of ACER and the ENTSOs announced in 2015-2016, a stronger mandate could be given to ACER to ask NRAs to report on vulnerable consumer definitions and measures. Finally, the biennial reports on energy prices (announced in the Communication on the Energy Union Package) and produced by DG Energy should include a specific section on energy prices applied to vulnerable consumers.

Recommendation 3. Explicitly define what energy poverty is and urge Member States to act to alleviate it, but without prescribing the metric to be used by Member States.

We do not want to fall into a situation where recognition of the energy poverty challenge is delayed due to lack of data to support any given metric. To this end, the Commission should develop a communication document or strategy (as is most appropriate) on their understanding of the energy poverty challenge, what is being done at the Member State level, and urge Member States to develop strategies, perhaps in the form of national “energy poverty (re-)action” plans (also advocated by the EPEE project (2009)).

At the EU level, we do not consider that the EC should adopt a specific expenditure-based metric, due to lack of harmonised data. However, the EC should harness the research using EU-SILC data to set out the challenge of energy poverty, and take on board recommendations to improve this survey, as set out in section IV.A.3.

We recommend that any EU level recognition of energy poverty, while not prescribing a metric, should encompass –

- energy affordability concerns relating to low income households

- include all household energy use (even outside the EC competency of internal energy markets, as Member States can act across all energy use)
- reference the problem as shown by the EU-SILC indicators

At the Member State level, the Commission should share practice on how different Member States have been developing energy poverty metrics. This would highlight types of metric and data required to support such a metric. A single metric should not be prescribed; a pragmatic approach would be for Member States to tailor metrics to the best available data, whilst looking to continually improve data in the future. Considerations for development of metrics are provided in IV.A.4.

We strongly recommend that the Commission, in their communication, moves beyond considering energy poverty simply as an issue within electricity and gas markets. Whilst we recognise their remit here, our study highlights that energy poverty is also a problem for communities who are off-grid (using oil and bioenergy) and linked to non-gas / electricity service provision e.g., district heating. This question of scope is critical for ensuring that the issue of energy poverty is not restricted to the regulated markets.

We also recommend that consideration is given to energy expenditure on mobility, as part of household energy affordability, and that energy poverty is not only viewed as a heating issue but also cooling, which is particularly relevant for Southern European countries. Concerning mobility, an obvious reason is that expenditures for mobility weigh heavily in households' budgets. Another reason deals with the efficiency of policy instruments. Integrating residential and mobility aspects of energy poverty might help to capture the indirect rebound effect which can be generated by financial measures aimed to alleviate energy poverty.

This process for developing this communication or strategy could be facilitated by a broad stakeholder group, including the VCWG. It could include NRA representatives, civic society groups, academia, data and indicator providers (including Eurostat), as well as relevant DGs (in particular: DG Health and Safety, DG Energy, and DG Justice and Consumers), and other interested and affected parties.

We believe the relevant Commission document would provide this issue with the visibility it requires, and the longer term vision needed to address this challenge. It could also provide the impetus for developing indicators at the EU level that help quantify the problem, and allow for progress to be measured (see recommendation 6).

Under the current legislation, the adoption of an integrated approach combining social policy measures and energy efficiency improvements is only an option (directive (2009/72/EC, (53))). Such an integrated approach should be made mandatory.

Recommendation 4. Develop a database of measures used by different Member States, relating to vulnerable consumer protection and energy poverty.

We believe that the Commission has an important role in disseminating information relating to different types of measures. This study and its associated Member State reports, other research initiatives listed (Appendix IV), and the work of the VCWG provide a useful starting point. The INSIGHT_E consortium will certainly host all of the associated reports on its website for stakeholders to access.

This database could be a 'live' reporting facility that could be updated, to include reporting by NRAs on vulnerable consumer measures. This

reporting could be under the responsibility of ACER, and accessible to the EC.

Critically, we recognise the large variation in the response of Member States, reflected by the range of measures being used. This reflects different national circumstances including –

- Recognition of the issue and policy approach;
- Extent of market liberalisation;
- Type of housing stock (including energy efficiency), and tenure;

- General welfare of the population and economic status of the Member State.

We, therefore, recognise the importance of transferability to help Member States determine what is relevant in their national context. This study starts to grapple with this issue by starting to group different Member States, based on their approach taken and types of measures introduced (Table 10).

Table 10: Categorisation of Member States by approach and measures taken

<i>Description of approach</i>	<i>Member State</i>
Social policy-led & developed markets. Strong social security provision to ensure energy costs are met; focus on energy efficiency improvement in social housing stock or within the household stock generally.	SE, DK, FI, NL, SK, DE, AT
Social policy-led & developing markets. Primary measures are via social security provision & disconnection protection; limited additional protections; market liberalisation underway but not complete	BG, LT, PL, RO, HR, SI, GR, CY, MT, LU
Energy policy-led. Often explicit focus on energy poverty; emphasis of measures on energy efficiency improvement	IE, IT, UK, HU
Energy & social policy mix. Often explicit focus on energy poverty; financial measures more targeted towards vulnerable consumers than energy efficiency ones	BE, FR, PT

Important transferability questions include –

- does it fit policy approach?
- is it relevant in context of the market?
- how does data availability impact on implementation?
- do physical characteristics (dwelling stock, tenure, heating systems) impact on feasibility?

In summary, we consider that protecting vulnerable consumers and tackling energy poverty should remain an issue primarily tackled at the Member State level, given the different national circumstances, and type of policy approaches adopted (also see Thomson and Snell, 2013). However, the Commission

can play a strong role in information dissemination regarding effective and relevant measures.

Recommendation 5. Support measures that promote the targeting of energy efficiency measures to address energy poverty.

Our study highlights the important role of energy efficiency measures in addressing the structural nature of the problem of energy poverty. Other research also establishes the effectiveness of measures for addressing energy poverty; for example, the ACHIEVE, EC-LINC and Energy Cities research initiatives

show how the execution of energy audits and installation of energy efficiency measures in low-income households has proven successful in delivering energy savings and financial savings for households and government bodies providing public funds for energy subsidies.

Under recommendation 4, we foresee a database of measures that Member States could access, in particular to identify effective ways of targeting energy efficiency measures on low income households. In respect of transferability of energy efficiency measures, we highlight the following –

Tenure / building type. Effective measures in Scandinavian countries and the Netherlands have targeted social housing. The transferability of such measures is dependent on large social housing stock, and the ability to retrofit cost-effectively. This is helped by the homogeneity of the building stock. Measures also exist that target private rental markets. These are more challenging and more costly, due to lack of economies of scale, and difficulties in enforcement. The ELIH-MED (2014) project is also a good example of where retrofitting of low-income social, government and communal buildings was undertaken on a large scale to demonstrate effectiveness of refurbishments.

Joint occupancy. A number of countries, particularly in Eastern Europe, have large stocks of joint occupancy buildings. Whole building retrofits may need to be implemented in ways that ensure benefits of occupants, and spread costs fairly.

Financing. Many energy efficiency measures rely on household financing. In Member States where access to private capital is more difficult, additional incentives and financial report will be required, including direct grants or better access to EU structural or regional development funding (ELIH-MED 2014).

Implementation body. In some Member States, energy companies may have the capacity to implement measures. While this can have benefits, there are also issues of conflicts of issues that need to be carefully considered. Other implementation models include a more community focused approach, such as schemes offering opportunities to develop skills and capacity in building retrofit in specific areas that may have employment problems (see also ELIH-MED 2014 for recommendations and experiences with developing low skilled workers through the refurbishment projects).

Funding. Different Member States may seek to raise funding via different energy policies or through general taxation. Such considerations are important; under general taxation, there may be risks of funding getting cut while under specific policies, there are risks of regressivity and public acceptability if paid for via bills. ELIH-MED (2014) describes various funding mechanisms, giving best practice examples for each type from national carbon funds to EU structural funds to public grants and revolving funds. The recommendation is for flexible financing options, such through Third Party Financing (through ESCOs) or voluntary agreements, where industry provides technologies on a large scale.

At the Commission level, we propose that more targeting of energy efficiency measures on low income households should be encouraged. One mechanism could be through the Energy Efficiency Directive, used to ensure that Member States allocate a percentage of funding in this area to tackling energy poverty through energy efficiency refurbishments in low income households (NEA 2014). The Commission could also ensure that a higher allocation of EU Funds was targeted on to renovation programmes focused on fuel poor, low-income and vulnerable categories of people (BPIE 2014).

We specifically recommend that the Commission considers ways of targeting additional funds to Central and Eastern European and Southern European Member States, which have been identified as having the most significant problems based on the available evidence, such as through access to the Cohesion Fund or through European Development Refurbishment Funds (ELIH-MED 2014, BPIE, 2014, Thomson and Snell 2013, Tirado Herrero and Bouzarovski 2014). Energy price increases in recent years and continuing austerity measures in the region have increased this problem.

Recommendation 6. Develop data reporting mechanisms that allow for improved indicators for measuring energy poverty.

While the specific metrics differ across Member States, in relation to defining energy poverty, there is broadly speaking a need for information on income level, energy consumption and energy prices across different households.²⁴ It is important that Member States can develop datasets that allow for better monitoring of the situation. At the Commission level, this is also critical, to better understand the issue at the European level.

Where relevant data currently exist, they could be reported centrally to Eurostat or an energy poverty observatory by each Member State through a common reporting format. The specific data and collection mechanism should be clearly identified through a working group. To that end, we propose the development of an Observatory on Energy Poverty, as recommended by the EPEE project (and EESC 2013 and Thomson and Snell 2013), in order to:

- Assess and monitor the causes and consequences of energy poverty;
- Record the energy consumption of households in reliable databases;
- Provide reliable socio-economic indicators;
- Ensure coordinated action plans are developed, appropriately funded and implemented with progress monitored.

This body should be mandated to collect information (or coordinate the collection of relevant data through Eurostat) and funded to achieve these objectives. However, this should be a phased approach, developing new indicators while improving existing proxy indicators. Thomson and Snell (2013) provide some useful insights into the current weakness of the main proxy datasets from EU-SILC²⁵ in the context of their application for estimating energy poverty. Recommendations are set out in section IV.A.3 of this report.

Coordination between Eurostat and statistical agencies, supported by an observatory, could help develop a more accurate understanding, based on the development of more quantitative indicators.

In relation to vulnerable consumers, we also recommend that NRAs require energy companies to identify vulnerable groups, examples of which are already occurring across Member States. We also recommend that the the Commission / NRA representative bodies consider how smart meters could be used to identify needy households and better understand their energy consumption as well as to specifically target these households with subsidies as needed. The Citizen's Energy Forum could be a useful platform to take this discussion forward.

²⁴ DECC (2014) provides a useful overview of the datasets used in the UK to support their fuel poverty metrics.

²⁵ REGULATION (EC) No 1177/2003 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 June 2003 concerning Community statistics on income and living conditions (EU-SILC)

Recommendation 7. Introducing a stronger requirement in impact assessment guidelines to evaluate the impact of policies on vulnerable consumers, and the energy poor.

We recommend that the DG ENER feeds into the ongoing process of impact assessment guideline revision,²⁶ to ensure that any revisions reflect the need for policy appraisal to consider lower income households or other vulnerable groups. Guidance would be useful to assess measures targeting energy poverty but also broader energy policies that could have positive or negative impacts on fuel poor or vulnerable groups.

Learning could be gained from different Member States. In the UK, in the climate and energy policy field, distributional impact assessment methods have been developed, to better understand impacts on different groups in society, particularly low income groups (broad guidance is provided in the Green Book, while many of the key distributional impact analyses are highlighted in Preston et al. 2014).

This type of systematic appraisal is important for ex-ante analysis of proposals. However, ex-post analysis should also be encouraged to help understand effectiveness of measures. This would also help Member States' learning on best practice (described under Recommendation 4).

Summaries of our recommendations at both the EU and Member State level are provided below in Table 11 and Table 12, respectively.

²⁶ Overview of IA revision process, http://ec.europa.eu/smart-regulation/impact/commission_guidelines/commission_guidelines_en.htm

Table 11: Study recommendations and their operationalisation: EU level

Target	Time frame	Vehicle	Recommendation
European Commission, DG ENER	2015-2016	Revision of directives 2009/73/EC and 2009/72/EC on gas and electricity markets	<p>Recommendation 1. Recognise that the issues of vulnerable consumer protection and energy poverty are distinct:</p> <ul style="list-style-type: none"> ▪ State that vulnerable consumer protection and energy poverty are distinct issues requiring distinct solutions. ▪ Vulnerable consumer protection (along the lines of consumer protection and curative approaches) and energy poverty (requiring a long-term, preventive approach).
European Commission, DG ENER			<p>Recommendation 2. Provide additional guidance on what constitutes vulnerable consumers (based on Member States' experiences):</p>
	2015-2016	Revision of directives 2009/73/EC and 2009/72/EC	<ul style="list-style-type: none"> ▪ Propose a common approach to definition of vulnerable consumers in an implementing act, to include both socio-economic and energy vulnerability considerations.
	2015-2016	Review of the functioning of ACER & the ENTSOs	<ul style="list-style-type: none"> ▪ Give a stronger mandate to ACER to require NRAs to report on vulnerable consumer definitions and measures.
	tbc	Biennial Energy Price reports	<ul style="list-style-type: none"> ▪ Include a specific section on energy prices applied to vulnerable consumers.
European Commission, VCWG	2015-2017	Stakeholder Dialogue/Communication/Guidance document/Revision of directives 2009/73/EC and 2009/72/EC	<p>Recommendation 3. Explicitly define what energy poverty is and urge Member States to act to alleviate it, but without prescribing the metric to be used by Member States:</p> <ul style="list-style-type: none"> ▪ Engage a stakeholder dialogue through the VCWG and with extended stakeholders on the definition of Energy Poverty and Strategy to address it. ▪ Encourage an integrated approach (social policy and energy efficiency) and inclusive definitions (including mobility) at Member State level. ▪ Publish results in a communication and/or guidance documents. ▪ A common reporting format developed by the Commission would provide guidance for the Member States to propose a definition and metrics for their context (based on local experience/research initiatives).
ACER/ European Commission, VCWG	2015-2017	Database hosted by Commission	<p>Recommendation 4. Develop a database of measures used by different Member States, relating to vulnerable consumer protection and energy poverty</p>
			<p>Recommendation 5. Support measures that promote the targeting of energy efficiency measures to address energy poverty:</p>
European Commission, DG ENER		Revision of the Energy Efficiency Directive	<ul style="list-style-type: none"> ▪ Ensure that Member States allocate a percentage of funding in this area to tackling energy poverty through energy efficiency refurbishments in low income households
European Commission/		Relevant funding sources	<ul style="list-style-type: none"> ▪ Ensure that a higher allocation of EU Funds is targeted to renovation programmes focused on fuel poor, low-income

EIB			and vulnerable categories of people
Target	Time frame	Vehicle	Recommendation
European Commission			<p>Recommendation 6. Develop data reporting mechanisms that allow for improved indicators for measuring energy poverty.</p> <ul style="list-style-type: none"> ▪ Create a European Energy Poverty Observatory ▪ Consider how smart meters could be used to identify needy households and better understand their energy consumption as well as to specifically target these households with subsidies as needed ▪ Develop a common reporting format
European Commission, DG ENER	During IA revision period	Revision of the impact assessment guideline revision	<p>Recommendation 7. Introducing a stronger requirement in impact assessment guidelines to evaluate the impact of policies on vulnerable consumers, and the energy poor.</p> <ul style="list-style-type: none"> ▪ Ensure that any revisions reflect the need for policy appraisal to consider lower income households or other vulnerable groups.

Table 12: Study recommendations: Member State or sub-national level

Target	Benchmark	Transferability	Recommendation
			Recommendation 5. Support measures that promote the targeting of energy efficiency measures to address energy poverty:
All EU Member States eligible starting with refurbishments specifically targeting low income households /sector	BPIE, FinS H, ELIH-MED	Through the development of national refurbishment action plans, all Member States could have overview of building stock	<ul style="list-style-type: none"> ▪ Fund energy efficient renovation of buildings through public funding schemes and backed up with national refurbishment plans ▪ Couple them with legislation to support the enforcement of building renovations where owners do not occupy the buildings themselves
See: transferability	Scandinavia, NL	Dependent on large social housing stock, and the ability to retrofit cost-effectively; helped by the homogeneity of the building stock	<ul style="list-style-type: none"> ▪ Implement measures targeting social housing. ▪ Implement measures targeting private rental markets. These are more challenging and more costly, due to lack of economies of scale, and difficulties in enforcement.
Eastern Europe MS	ELIH-MED	See example of ELIH-MED, transferable to other similar MS or groups of MS	<ul style="list-style-type: none"> ▪ Implement whole building retrofits in joint occupancy buildings in ways that ensure benefits of occupants, and spread costs fairly.
All Member States, especially those with hard access to private capital	ELIH-MED, FinS H	Funding through Cohesion Fund or European Regional Development Fund	<ul style="list-style-type: none"> ▪ Many rely on household financing. In Member States where access to private capital is more difficult, Set additional incentives and financial report, including direct grants, for energy efficiency measures
All Member States	N/A	Depends on type of approach	<ul style="list-style-type: none"> ▪ Consider relevant implementation bodies to avoid conflict of interest while being sufficiently inclusive
All Member States seeking to raise funding via different energy policies or through general taxation	ELIH-MED	Flexible financing options, such through Third Party Financing (through ESCOs) or voluntary agreements, where industry provides technologies on a large scale.	<ul style="list-style-type: none"> ▪ Under general taxation, consider carefully risks of funding getting cut while under specific policies, there are risks of regressivity and public acceptability if paid for via bills.
NRAs from all Member States	EPEE, Thomson and Snell	With help of a common reporting format, NRAs can fill out data uniformly	<p>Recommendation 6. Develop data reporting mechanisms that allow for improved indicators for measuring energy poverty:</p> <ul style="list-style-type: none"> ▪ Report data centrally to Eurostat or an energy poverty observatory by each Member State. ▪ Require energy companies to identify vulnerable groups.

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APPENDICES

The following appendices are provided in a separate document.

Appendix I. Vulnerable Consumers and Energy Poverty in Member States: Country summaries

Appendix II. Vulnerable Consumers and Energy Poverty in Member States: Country reports

Appendix III. European Stakeholders for Energy Poverty

Appendix IV. European Energy Poverty Research Initiatives