



Italian National Agency for New Technologies,  
Energy and Sustainable Economic Development

*European Energy Network (EnR)  
Presidency & Secretariat 2018/2019*

## **EnR Position Paper on *Energy Poverty in the European Union***

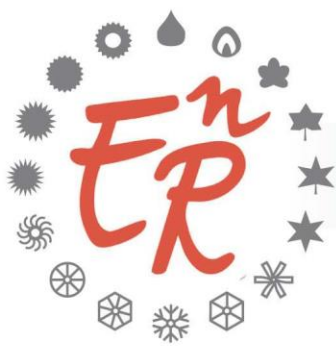
*- January 2019 -*

EnR is a voluntary network currently numbering 24 national European energy management agencies. They mainly have responsibility for the planning, management or review of national research, development, demonstration or dissemination programmes in the fields of energy efficiency, renewable energy and climate change abatement. EnR member organisations are the main implementers of policies in their respective countries and, as a result, have a direct contact with stakeholders on a regular basis. In this sense, the network gathers information and experience from all backgrounds and acts as a two-way channel of communication between central policy makers and the citizens of Europe.



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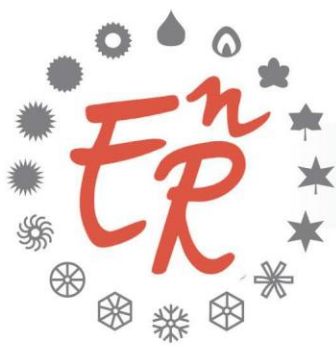
**<http://enr-network.org/about-enr>**



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*The content of this document does not necessarily reflect the opinion of all the  
European Energy Network Members*



## I. Context

Energy poverty currently affects a significant number of European households, representing a growing problem in the Union, also as a result of the financial crisis. The phenomenon is relevant for the European governance and policy strategy at different levels, having social, economic, political, environmental and health implications (Papada and Kaliampakos, 2018).

Moderation of energy demand is one of the five dimensions of the Energy Union Strategy established in 2015<sup>1</sup>. The improvement of energy efficiency has several positive effects, among which helping the alleviation of energy poverty. The EU building stock needs, in the long term, to be (deeply) renovated, converted to Nearly Zero Energy Buildings (NZEBs) as more as possible, and national renovation strategies should facilitate a cost-effective transformation, taking into account that some households suffer an energy poverty condition. National action plans or other appropriate frameworks should be developed to tackle energy poverty and Member States should ensure the necessary energy supply for vulnerable customers, by adopting social policies or energy efficiency improvements for housing. It is important to mention that, when the energy market is considered, a criterion to define consumer vulnerability could be the energy poverty condition, but between the two concepts a distinction remains<sup>2</sup>.

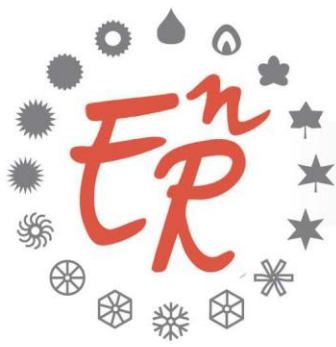
With the *Clean Energy for All Europeans* package, the European Commission has proposed a range of measures to address energy poverty through energy efficiency, safeguards against disconnection and a better definition and monitoring of the issue at Member State (MS) level through the integrated National Energy and Climate Plans (NECPs). As a consequence, the EU legislative context for energy poverty is undergoing several changes. Energy poverty is mentioned in the new Energy Efficiency Directive (2018/2002), the new Energy Performance in Buildings Directive (2018/844) and the Governance Regulation (2018/1999). Also the Electricity Directive (2009/72) refers to energy poverty, and its revised version was the product of political agreement in December 2018.

As specified in the **Directive 2018/2002**, energy efficiency should be considered as complementary to social security policies when tackling energy poverty at MS level. Particular attention should be devoted to the accessibility to energy efficiency measures for consumers affected by energy poverty as well as to the cost-effectiveness and affordability of the measures for both property owners and tenants. Moreover, current building renovation rates are insufficient to meet the objectives of the Paris Agreement and buildings occupied by consumers affected by energy poverty are the hardest to reach.

These are the reasons why the new Directive states that, when designing the measures to fulfil energy saving objectives, Member States should take into account the need to alleviate energy poverty in accordance with criteria established by them. To do this, they could require “*a share of energy efficiency measures under their national energy efficiency obligation schemes, alternative policy measures, or programmes or measures financed under an Energy Efficiency National Fund, to be implemented as a priority among vulnerable*

<sup>1</sup> ‘A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy’, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52015DC0080>

<sup>2</sup> [https://ec.europa.eu/justice/consumer-vulnerability/index\\_en.html](https://ec.europa.eu/justice/consumer-vulnerability/index_en.html)



*households, including those affected by energy poverty and, where appropriate, in social housing” (article 7).*

Relative to these measures, Member States shall include information about the outcome of measures to alleviate energy poverty. In the first draft of the new Energy Efficiency Directive (EED) the focus on energy poverty was higher. In particular, there was a reference to a national estimation of the problem, basing on different information both at national and EU level, and to appropriate national objectives to reduce it, where needed.

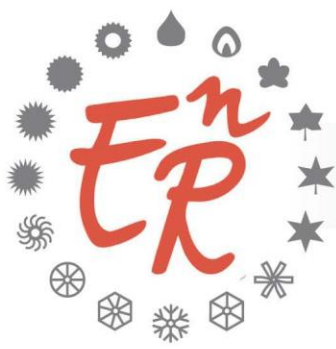
The reduced focus on energy poverty in Directive 2018/2002 could be due, among others, to the different perception of this phenomenon which can be observed in different MS and to the lack of a harmonised definition and measure. The absence of a definition, or the identification of energy poverty with absolute poverty, could imply opportunistic behaviour by certain MS which had rather preferred having a limited attention on this topic. It could be interesting to look at how many countries have included energy poverty in their drafts of the NECPs, i.e. by adopting an official definition and defining a national objective or not.

However, the **EU Regulation 2018/1999** on the Governance of the Energy Union and Climate Action sets out that Member States in their NECPs “*assess the number of households in energy poverty taking into account the necessary domestic energy services needed to guarantee basic standards of living in the relevant national context, existing social policy and other relevant policies, as well as indicative Commission guidance on relevant indicators for energy poverty*” (article 3). If MS find a significant number of households in energy poverty, a national indicative objective to reduce energy poverty should be included in their plan. Integrated reporting on Energy Poverty is consequently required, about information on progress as well as quantitative information on the number of households in energy poverty, and available information on policies and measures addressing the problem.

Furthermore, according to **Directive 2018/844**, MS could define their own criteria to take into account energy poverty and establish which are the relevant actions for its alleviation, to be outlined in their long-term renovation strategies. Each strategy should encompass *an overview of policies and actions to target the worst performing segments of the national building stock, split-incentive dilemmas and market failures, and an outline of relevant national actions that contribute to the alleviation of energy poverty* (article 2).

In the **Electricity Directive**, energy poverty is dealt with in article 3, referring also to the concept of consumer vulnerability. In the **draft of new Electricity Directive**, specific articles (28 and 29) state that Member States shall define a set of criteria for the purposes of measuring energy poverty and that they shall report on its evolution to the Commission as part of their Integrated National Energy and Climate Progress Reports.

After having summarised the relevant EU legislation, the growing focus on regional and local dimension of energy poverty is also worth to be mentioned. In particular, both the Committee of Regions and the Covenant of Mayors highlight how this attention is key in order to try to develop targeted solutions. Very often there are more similarities among regions belonging to different countries than among regions in the same country (Bouzarovski, 2018).



## II. Definition, measure and data: the state of the art

It is widely acknowledged in the literature that there are three main components at the basis of energy poverty (Ntaintasis et al., 2019; IEA, 2011; BPIE, 2014; L. Papada and D. Kaliampakos, 2019; Bouzarovski, 2011; Bouzarovski and Petrova, 2015; Pye et al., 2015; Ugarte et al., 2016; J. Schleich, 2019):

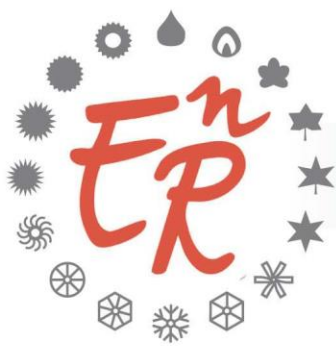
- low household income;
- high/growing energy prices;
- inefficient energy performance of buildings concerning thermal insulation, heating systems and equipment.

In order to help Member States to fight energy poverty, through the improvement of measuring, monitoring and sharing of knowledge and best practice, in January 2018 the European Commission launched the [Energy Poverty Observatory](#) (EPOV). EPOV has provided an enormous contribution to the preparation of comparative and robust statistics on energy poverty that are publicly accessible. The results achieved in the first year of its existence are consistent with the rationale behind its creation, showing that energy poverty is more widespread than expected across the EU. Defined as a set of conditions where *“individuals or households are not able to adequately heat or provide other required energy services in their homes at affordable cost”*, energy poverty affects almost 50 million people in the European Union, according to recent EPOV data.

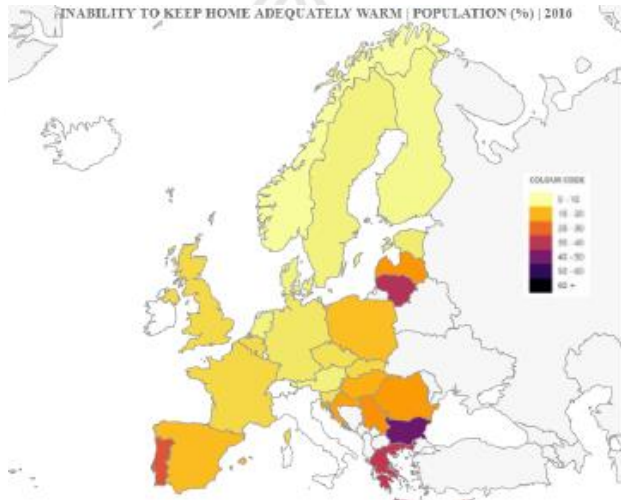
More specifically, 28 primary and secondary indicators are defined by EPOV. Primary indicators are four, two of which based on self-reported experiences of limited access to energy services, and the other two calculated using household income and/or energy expenditure data. Secondary indicators are instead relevant in the context of energy poverty, but not directly indicators of energy poverty itself (e.g. energy prices and housing-related data). Both primary and secondary indicators can be computed by using Eurostat data. This shows that data on EU countries are available on different dimensions of energy poverty, the relevance of which depends on the definition of energy poverty adopted.

To measure energy poverty, EPOV recommends using multiple indicators in combination. Primary indicators are defined as follows:

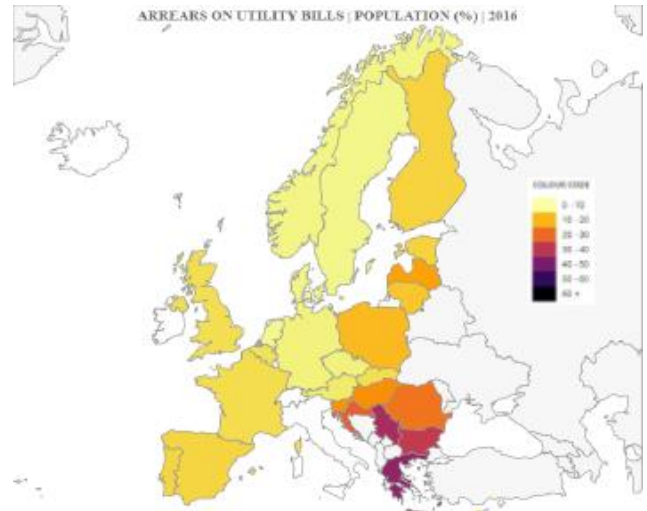
1. High share of energy expenditure in income (2M): part of population with share of energy expenditure in income more than twice the national median (source: EPOV, 2010 HBS).
2. Hidden energy poverty (HEP): part of population whose absolute energy expenditure is below half the national median (source: EPOV, 2010 HBS).
3. Inability to keep home adequately warm: based on self-reported thermal discomfort (source: Eurostat, 2016 SILC).
4. Arrears on utility bills: based on households' self-reported inability to pay utility bills on time in the last 12 months (source: Eurostat, 2016 SILC).



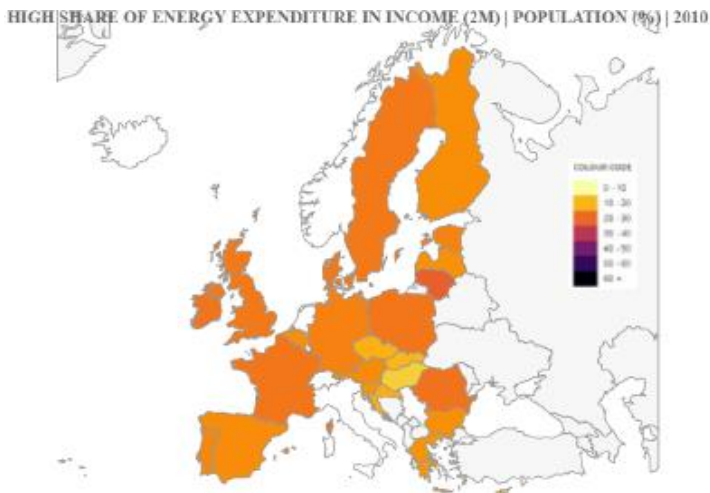
**Figure 1 – Overview of energy poverty in the EU according to primary EPOV indicators**



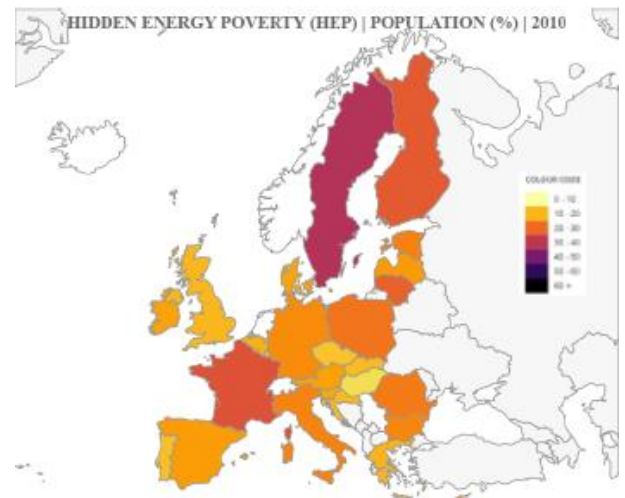
Source: EU SILC 2016



Source: EU SILC 2016



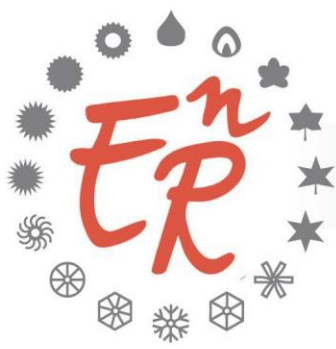
Source: HBS 2010



Source: HBS 2010

In 2016, 44.5 million people were unable to keep their home warm and 41.5 million people had arrears on their utility bills (Figure 1). However, it may be argued that the first indicator misses the difference between needs and preferences and that the second one could appear too broad.

Table 1 shows the detailed information underlying the maps in Figure 1.



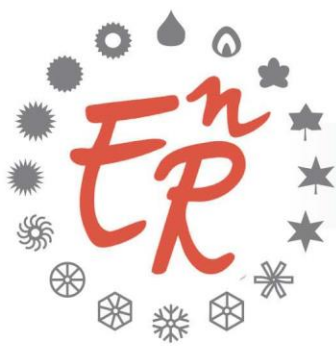
**Table 1 - EPOV primary indicators values for selected European countries:  
green = low, red = high energy poverty**

Country	2M (2010)	HEP (2010)	Keep warm (2016)	Arrears (2016)
Austria	15.3	12.5	2.7	4.2
Belgium	14.7	10.5	4.8	5.0
Bulgaria	14.7	15.9	39.2	31.7
Croatia	10.9	9.6	9.3	25.3
Cyprus	11.9	13.2	24.3	15.4
Czech Republic	10.7	8.4	3.8	3.0
Denmark	17.7	12.0	2.7	2.5
Estonia	16.2	16.5	2.7	7.9
Finland	14.8	22.3	1.7	7.7
France	18.1	23.7	5.0	6.1
FYR Macedonia			25.7	41.0
Germany	16.6	15.1	3.7	3.0
Greece	14.2	10.3	29.1	42.2
Hungary	6.9	5.0	9.2	16.2
Iceland			1.6	6.0
Ireland	18.4	12.3	5.8	12.1
Italy		16.3	16.1	8.9
Latvia	14.5	13.2	10.6	13.2
Lithuania	21.4	21.2	29.3	9.7
Luxembourg		8.5	1.7	4.0
Malta	17.3	15.6	6.8	9.0
Netherlands			2.6	2.0
Norway			0.9	2.4
Poland	18.1	18.5	7.1	9.5
Portugal	15.7	8.8	22.5	7.3
Romania	18.6	17.5	13.8	18.0
Serbia			13.3	34.8
Slovakia	10.0	9.2	5.1	5.7
Slovenia	14.1	11.5	4.8	15.9
Spain	15.2	13.0	10.1	7.8
Sweden	17.7	31.0	2.6	2.6
Switzerland			0.6	4.5
Turkey			15.9	33.2
United Kingdom	17.8	9.8	6.1	5.7

Source: ENGAGER Policy Brief

Although it could seem obvious, we should keep in mind that in order to measure a phenomenon, it should be defined first. Adopting a definition clearly restricts the range of possible measures to be adopted, but open issues still remain in terms of what dimensions and which data are included in the measure. Basing on the definition adopted and the measurement option chosen, the same data could become useful or not. Energy poverty is a complex phenomenon and as such it requires a well-structured definition, capable to consider all relevant issues, and a corresponding measure, based on available data.

A first issue concerns the relevant aspects to be considered for the definition. Due to the multidimensionality of the topic, a number of them could be considered, trying to capture different socio-economic issues which characterise and affect everyday life of (energy poor) households (Papada and Kaliampakos, 2019). Comfort levels are a first example, as they



could be usefully employed in measuring energy poverty, contributing to the inclusion of subjective elements in objective-type measures (Faiella et al., 2017). In this case, if we agree that the issue is worth to be considered, data collection should be oriented to provide more information in a harmonised and comparable way among MS.

An analogous reasoning could be applied to the connection of scarce access to energy services, such as inadequate heating, to health problems, for example relative to respiratory and cardiovascular systems.

Also summertime issues, initially not included in energy poverty definitions adopted both at EU and country level, start to be taken into account as conceptually relevant; still, a significant information gap remains. It is worth mentioning that, in a long term perspective, the need for summertime cooling could become significant for more and more people with climate change, as recognised by IEA (2018).

Many other potentially relevant dimensions are affected by information gaps, such as electrical safety, economic impacts of poor quality energy supply, and other energy services in the home, such as Information and Communications Technology (ICT) (Thomson and Bouzarovski, 2018).

Finally, mobility is usually not considered as one of the energy services to be included in energy poverty measurement; indeed, given a wide heterogeneity in the travel needs of the end-users, as well as their unequal possibilities to access to alternatives, the transposition of existing indicators from the domestic sector to the transport sector would not be satisfactory (Berry, 2019). Only recently the access to public transport services starts to be mentioned in the context of the Covenant of Mayors and Committee of Regions. In particular, the Covenant of Mayors highlights that 10 million people in the EU<sup>3</sup> need to walk more than 30 minutes to access to public transport facilities. Hence, it proposes the distance of transport services as possible dimension to be taken into account by energy poverty measurement. Also the expenditure on transport fuels could be a significant component of household budget but, as said, until now this has not been considered in existing energy poverty measures.

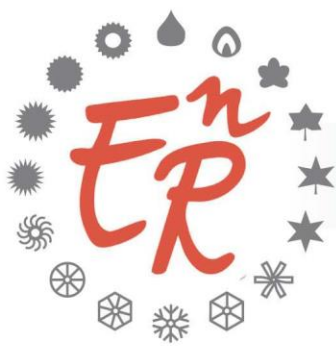
To prove the energy poverty focus on dwelling-related expenditures, energy poverty is listed as one of the main aspects tracked by the EU Building Stock Observatory, as well as a research field for Buildings Performance Institute Europe.

A second issue concerns the chosen measure and the associated data availability. In general, two broad and antithetical categories can be singled out for measuring energy poverty: subjective and qualitative indicators, developed by individuals/households themselves or third parties; objective indicators, mainly income/expenditure-based (Ntaintasis et al., 2019; Bouzarovski, 2011; Price et al., 2012; Heindl, 2015; Romero et al., 2018). Member States adopt different measures to detect poor households. Few of them adopt more complex measures, belonging to the Low Income High Cost (LIHC) type of measures, through the share of energy expenditure on income and the residual income below the poverty line (Hills, 2012), while most of them embrace simpler ones, as the 10% share of energy expenditure on the total budget. The adoption of a given indicator emphasises different aspects of energy poverty (Robinson et al. 2018). Regardless the approach, households forced to reduce energy consumption for its too expensive cost, may be not detected as energy poor (Ntaintasis et al.,

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<sup>3</sup> <https://www.eumayors.eu/support/energy-poverty.html>,  
[http://www.docutren.com/pdf/boletin/\[IIIA%201440\].pdf](http://www.docutren.com/pdf/boletin/[IIIA%201440].pdf)





2019), and more in general, each of the main strands of income-based energy poverty indicators show pros and cons for their practical implementation and interpretation (for a recent review, Romero et al., 2018).

Member States compute energy poverty measures basing on national surveys which have different periodicity from one country to another. In the next years, more guidance and efforts by the Commission could be useful, suggesting an harmonised measure which can be accepted by the majority of the MS. Then, a mandate to Eurostat should be given for data collection so that the measure could be computed in a harmonised way, including for all countries the relevant dimensions. The work of EPOV is already devoted to procuring the full micro datasets for the EU Statistics on Income and Living Conditions and the Household Budget Survey, but some delays have been experienced (Thomson and Bouzarovski, 2018). To summarise, EPOV has provided until now a key contribution in rationalising existing information and providing it on a comparable basis for all MS, but now the problem seems to be the lack of a harmonised measure. The definition and indicators proposed by EPOV should be accepted by all countries, which are in different positions, since they could not have an agreed definition or they have a very different one.

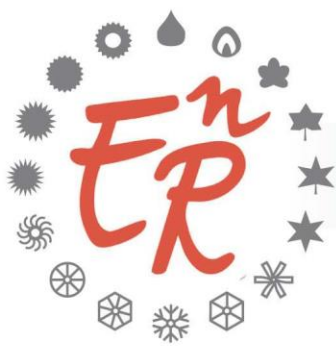
### III. The activities and results of ENEA EnR Presidency

The Italian Agency for New Technologies, Energy and Sustainable Economic Development (ENEA) took the EnR Presidency in February 2018. Following up the ANRE (Romania) Presidency in 2017, the energy poverty topic was confirmed as the special focus of the activities of the Presidency. To this aim, an ad hoc Task Force was established, involving experts from the following 11 EnR Members<sup>4</sup>:

- ADEME (France)
- ADENE (Portugal)
- AEA (Austria)
- ANRE (Romania)
- CRES (Greece)
- DENA (Germany)
- EIHP (Croatia)
- ENEA (Italy)
- EST (United Kingdom)
- HEPURA (Hungary)
- SEDA (Bulgaria)

EnR has taken part in the “Coalition of the Willing on energy poverty” promoted by the Covenant of Mayors on behalf of the European Commission (DG Energy and DG Climate Action). The coalition gathers EU organisations and initiatives, and it cooperates with EPOV, aiming at generating positive synergies and ensuring more effective actions at different levels. Indeed, the local dimension of the problem is relevant, also in order to monitor different approaches in terms of policies.

<sup>4</sup> <http://enr-network.org/members/>.



## The questionnaire

The *ad hoc* Task Force agreed to circulate a questionnaire in order to obtain an overview on energy poverty definition, measurement and policy measures tackling energy poverty in the agencies' countries. The questionnaire design has taken into account the survey developed in the context of the Concerted Action on Energy Efficiency Directive (CA EED, 2016)<sup>5</sup>. The EnR survey, in addition to the state of the art, aims also to gather inputs on country positions and desiderata on how best face the phenomenon; this part was very important to build up a set of recommendations approved by network.

The questionnaire was designed by the Italian team, which includes researchers from ISTAT (Italian National Institute of Statistics), Bank of Italy and Sapienza University, by taking into consideration the feedback received from the EnR *ad hoc* Task Force.

Among the 19 contacted National energy agencies, 11 compiled the questionnaire, representing the following countries:

1. Bulgaria (BU)
2. Croatia (HR)
3. France (FR)
4. Germany (DE)
5. Greece (GR)
6. Hungary (HU)
7. Italy (IT)
8. Portugal (PT)
9. Romania (RO)
10. Slovakia (SK)
11. United Kingdom (GB)

The survey includes four sections, respectively devoted to:

- A. Definition, measure, roles and mandates;
- B. Description of the energy poverty measure;
- C. Policy measures in force;
- D. Political action.

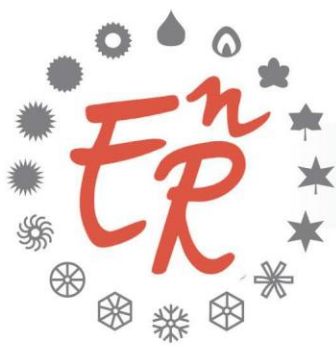
More information can be found in the Annex.

## Section A - Definition, measure, roles and mandates

In terms of definition, 45% of the respondent countries (FR, IT, HR, RO, GB) state to have an agreed definition of energy poverty. There is a large diversity of national agreed definitions, with three countries adopting a definition based on an objective measure, one based on a mixed objective and subjective measure, and the remaining one referred to social aids.

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<sup>5</sup> The Concerted Action on Energy Efficiency Directive is the EU initiative involving the national authorities and bodies appointed and entrusted with implementing the EE Directive, currently financed under the European Union's Horizon 2020 research and innovation programme. More information of the CA EED project can be found here <https://www.ca-eed.eu/Homepage>.



Two examples of agreed definitions based on objective measures define a household as energy poor if:

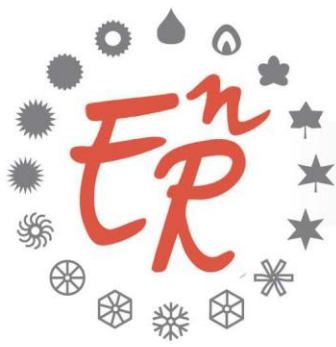
1. Purchasing a minimum set of goods and services and having access to energy services implies a resource constraint (in income or expenditure terms) higher than a “normal value” (IT);
2. the amount they would need to spend to keep their home at “an adequate standard of warmth” is above the national median level and if they spent that amount, their leftover income would be below the official poverty line (GB, England).

Although there is not always an agreed definition, each respondent country provides an estimation of energy poverty. The lack of an agreed definition could imply that a too much simplified approach is used, leading to controversial results. Also in this case, the scope of the definition underlying the estimation differs widely among countries.

As a consequence, the estimation of the number of energy poor households and the corresponding share on total population are not comparable among the respondent countries. Table 2 includes the estimations provided in the questionnaire.

**Table 2 – Estimations of energy poverty incidence provided by respondent countries**

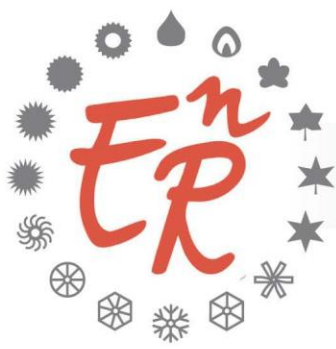
Member State	Estimation	Source	Year of reference
Bulgaria	40% of the energy users can't keep their homes adequately warm and more than 10% of the household's income is spent for energy bills	unofficial statistics	
Croatia	all users of social aid currently qualify as energy poor; however the actual number is assumed to be higher		
France	1) 5 M of households 2) 30% of all French people have restricted heating at home so as not to have too high bills and 15% of them reported having suffered from the cold in their homes during the last winter	1) Enquête Nationale Logement (ENL) 2) Observatoire National de la Précarité Énergétique (ONPE)	1) 2013 2) 2018
Germany	around 5 million households		2008
Greece	1) Percentage of households meeting <80% of energy needs = 40% 2) Percentage of households meeting less than 80% of heating needs = 43,1% 3) Percentage of households using more than 10% of their actual income for heating = 30,7% 4) Percentage of households with costs more than 10% of their income = 39,5% 5) inability to keep housing warm = 25,7%	1) Greek observatory 2) Greek observatory 3) Greek observatory 4) Greek observatory 5) EU SILC survey - ELSTAT	1) 2011 2) 2011 3) 2011 4) 2011 5) 2017



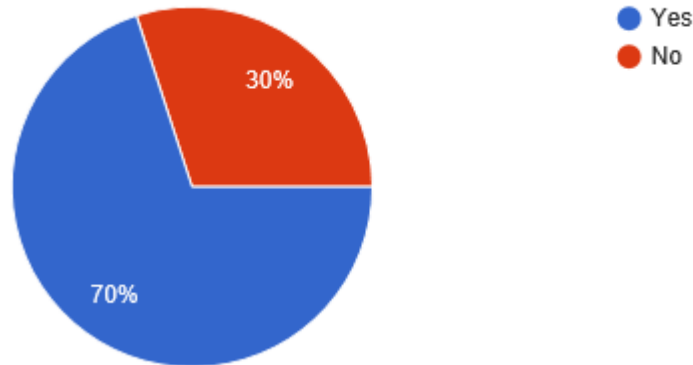
Hungary	<p>1) 700-800 k households in 2017, 21% of all households are estimated as energy poor</p> <p>2) 14,5%</p> <p>3) Eurostat report on Hungary states that 32 % of the population in Hungary lives in material and social deprivation</p>	<p>1) n.a.</p> <p>2) national statistics (KSH)</p> <p>3) EUROSTAT</p>	2) 2016
Italy	8% of total households (2.1 million households)	Italian NECP (2018)	2016
Portugal	Methodology applied for 29 municipalities in Portugal. On average 22% of the inhabitants are potentially fuel poor regarding their dwellings' space heating and 29% regarding space cooling.	Scientific methodology/article	
Romania	–	Eurostat data	2016
Slovakia	20%		
United Kingdom	<p>in England, 11.1% of households, approximately 2.55 million households;</p> <p>in Scotland (using the planned new definition), 24% of households that is 584,000</p>		2016

More than two third (70%) of the countries (FR, GR, HR, IT, PT, RO, GB) mention energy poverty in official policy documents (Figure 2). These are ad hoc strategies and programs, laws, National Energy Strategies or NECPs. Interesting examples of ad hoc plans and strategies are

1. Habiter mieux <http://www.anah.fr/proprietaires/proprietaires-occupants/etre-mieux-chauffe-avec-habiter-mieux/> (FR)
2. Cutting the cost of keeping warm: A fuel poverty strategy for England (GB) <https://www.gov.uk/government/publications/cutting-the-cost-of-keeping-warm>
3. Fuel Poverty (Target, Definition and Strategy) (Scotland) Bill (GB) <https://www.parliament.scot/parliamentarybusiness/Bills/108916.aspx>



**Figure 2 – Replies to Question A2:  
Has energy poverty ever been mentioned in any national policy document?**



Moreover, the distribution of competences among different institutions changes a lot according to the country. The Ministry in charge of Energy, in its different denominations (such as the Ministry of Economic Development in Italy), is very often responsible of the topic, and to a lesser extent also the Ministry dealing with Labour. In general, there is a lack of coordination among institutions and among public and private stakeholders, and in both cases there is room for improvement. Clearly, when a National Observatory exists, it is charged of the coordination among different institutions and activities.

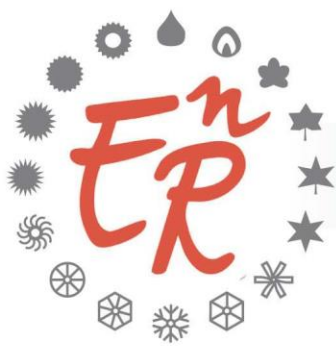
## **Section B - Description of the energy poverty measure**

This section identifies the most widely used measurement options. To this aim, and building on the analysis in the previous section, the following taxonomy was proposed:

- 1) Self-reported/subjective measures: poverty condition measured basing on households' personal assessment of their situation, such as whether their home is not adequately warm.
- 2) Objective measures: poverty condition measured basing on indicators, according to two possibilities:
  - 2a) Absolute measures: they rely on factors which do not depend on other households, also defining essential conditions for households to reach a minimum welfare level.
  - 2b) Relative measures: they compare the situation of a household with the "typical" one of other households (e.g. 10% rule, LIHC, energy expenditure greater than twice the average).

Looking at the definition adopted for statistical calculations, according to the questionnaire, almost half of the respondents (BU, FR, IT, GB, HR) have an agreed statistical definition. In three of these countries more than a measure is available.

Most of the countries adopt an objective/relative measure. Concerning the proposed taxonomy, some countries specify their national peculiarities: for example, in France the measure includes both objective and subjective elements, whereas in the United Kingdom



the official definition allows two assessments, in terms of extent and depth of energy poverty.

Two examples of LIHC measures are as follows

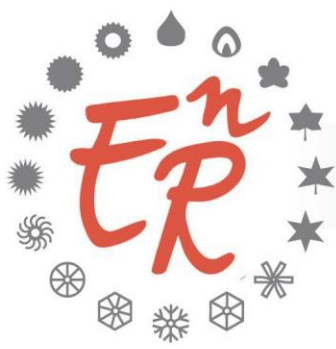
1. A household is energy poor if the share of energy costs is more than twice the average share of energy expenditure and if the household budget, after energy costs are deducted, is below the national (relative) poverty line; those families without heating purchases and total expenditure below the median are also included (IT).
2. A household is energy poor if the amount they would need to spend to keep their home at “an adequate standard of warmth” (defined in terms of a standard heating regime, and calculated by the National Calculation Methodology SAP used in building regulations and production of Energy Performance Certificates) is above the national median level and if their leftover income, after housing costs and adjusted for household size and composition, would be below the official poverty line (60% of median household income) (GB, England).

The LIHC measure is now the only official measure in England, after having replaced the previous 10% definition (“a household was defined as being fuel poor if they needed to spend more than 10% of their income to keep their home at a reasonable temperature”). The 10% definition is still used in Scotland, Wales and Northern Ireland but is shortly to be replaced in Scotland. The United Kingdom experience shows the complexity associated to energy poverty measurement also in different regions within the same country.

For each energy poverty measure, it would be interesting to deepen the knowledge about the employed data (i.e. income or expenditure, if cooling has been considered) and the corresponding statistical sources (harmonised vs national sources), with their periodicity. The survey shows that cooling is not considered in the computation and the statistical source is often national. However, the received replies do not allow us to provide an exhaustive overview.

## **Section C - Policy measures in force**

This section of the questionnaire is not aimed at providing a complete description of the policy measures currently in force to alleviate energy poverty. Indeed, several projects and literature are devoted to this topic. For example, a series of reports and database on solutions were produced in the framework of ASSIST (2018), a Horizon 2020 EU funded project. Previous studies, requested by the European Parliament's Committee on Industry, Research and Energy (ITRE), analysed and illustrated short-term remedies and resolution of long-term drivers of energy poverty, highlighting the impacts of energy efficiency on low-income households. These studies also examine to what degree energy efficiency policies should specifically target low-income households and in which circumstances they should be combined with social policies addressing energy consumption. In this perspective, the questionnaire aims to collect further information on their nature, namely if they are specific measures or included in wider energy efficiency or social schemes, and more importantly on their cost-effectiveness. Unfortunately, the number and content of answers are limited and do not allow us to compare the policy strategies of different countries.



The existing measures are mainly specific ones, the 11% of respondents state that they are included in wider measures. Below few examples of the measures highlighted by respondent countries are quoted

1. Different specific measures in England: reaching a legally binding Energy Performance Certificates (EPC) target for all fuel poor homes by 2030 where practicable, with interim milestones included in the Fuel Poverty Strategy; Energy Company Obligation (supplier obligation as mandated under EED art. 7) targeted entirely at households in fuel poverty, funding the installation of energy efficiency improvements; regulations to restrict the rental of the least energy efficient private rented homes (banded F or G on the Energy Performance Certificate).
2. A new specific measure in Scotland: the Energy Efficient Scotland Route Map, linked to the Fuel Poverty Bill, is the delivery mechanism which will improve energy efficiency by setting EPC targets, where technically feasible, cost effective and affordable. The Scottish Government is currently consulting on this mechanism.
3. Two new specific measures will be introduced in Croatia by the National Energy Efficiency Action Plans (NEEAP) 2017-2019 for fighting energy poverty and capacity building.
4. A measure included in a wider energy efficiency scheme in Italy: in the tax deduction scheme for energy retrofitting (Ecobonus), social housing can access the mechanism, and taxpayers in the no-tax area are allowed to transfer their credit to suppliers and credit institutions and financial intermediaries.

Only four countries (FR, HR, IT, PT) declare to be aware of energy poverty measures implemented at local level. In these countries, the involved municipalities often participate in the Covenant of Mayors. In this sense, the local dimension could have a potential to be exploited also by means of the commitment of signatories to provide access to secure, sustainable and affordable energy for all. However, again the replies are not enough both in their number and details to permit further considerations.

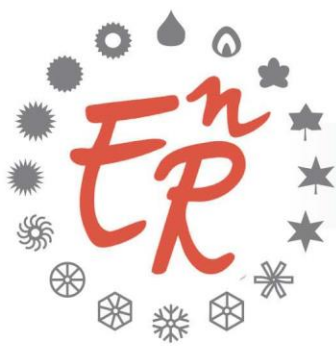
## **Section D – Political action**

The scope of this section is collecting information on country preferences among different measurement options, as well as on their proposals and positions on the energy poverty issue, in general terms and relative to Integrated National Energy and Climate Plans.

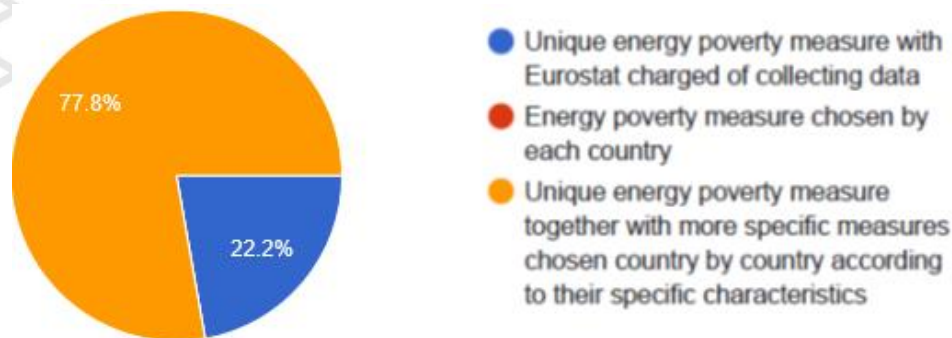
Only two countries (FR, GR) constituted a national observatory; in three countries (BU, IT, PT) the creation of a national observatory is envisaged, although no formal steps have been undertaken yet.

Most countries agree with the Commission's choice of including energy poverty objectives as optional in NECPs. All the countries consider the EPOV work as useful.

When asked about their preferences on measurement options, most of the countries are in favor of a harmonised unique poverty measure, to be accompanied by more specific measures chosen country by country according to their specific characteristics. Figure 3 illustrates the country positions.



**Figure 3 - Replies to Question D5:  
Please choose the preferred option among the following**



A country provides a very good explanation about the usefulness of a combined approach: a unique energy poverty measure would enable a common denominator for country comparison, while adding specific measures would allow each country to shape energy policies in the most appropriate way and collect the adequate information to monitor their results.

Weather situation, in terms of climatic zone, and the quality of the housing stock were identified as relevant criteria in orienting the energy poverty measurement. Energy effort rate and cold sensation are considered key elements for energy poverty measurement by a respondent country. Referring to art. 7 EED requirements is also mentioned, as a useful reference to inspire energy poverty measurement.

The relevance of a composite indicator was also investigated by the questionnaire and most countries would support its adoption.

#### **IV. EnR Network policy recommendations**

The present work builds on the Position Paper written by ANRE for the Romanian EnR Presidency. It seems interesting to recall the policy recommendations included in this piece of work:

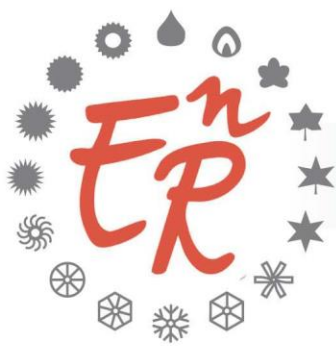
1. Introducing an official harmonised definition of energy poverty at EU level;
2. Developing an EU methodology for developing the National Action Plan for energy poverty;
3. Prioritising energy efficiency programs allocation at European level to draft and update the National Action Plans.

Given the current stage and policy orientation of *Clean Energy for All Europeans* package, these are the main policy recommendations of ENEA EnR Presidency, elaborated together with the Ad Hoc Task Force on energy poverty, about methodology, policy measures, governance, training and information:

- 1. To introduce a unique EU energy poverty measure, which could be a LIHC measure, and accompanying it by country specific indicators, to be set according to country specific characteristics.**

Defining is key for measuring every phenomenon and then for drafting targeted solutions and monitoring their results. At country level, agreeing on a definition could be difficult, thus the EU could provide useful guidance.





Having an agreed EU definition could ensure the recognition of the energy poverty problem, helping at the same time the comparison among different countries and regions.

We are aware that the legislation in force allows Member States to choose their own criteria for energy poverty definition and measurement, and that the Commission position is currently not pushing towards a harmonised definition. Nevertheless, it seems that a harmonised definition, in terms of unique measure accompanied by specific indicators, would be able to include all relevant dimensions and to usefully inform data collection.

Indeed, a standardised set of energy poverty indicators should embody the main characteristics of the households more at risk of energy poverty: together with income and expenses, already largely adopted, other socio-economic parameters, such as household composition, occupational status, tenancy relations, social relations, attitudes towards energy costs and environment, as well as technical conditions of dwellings, such as heating type and residential location, should be taken into account. Recent studies state that low-income households with children, living in old homes, paying rent, and with an unstable employment situation are clearly those that are most vulnerable to situations of (persistent) energy poverty (Romero et al., 2018; Ntaintasis et al., 2019; Berry, 2019; Schleich, 2019; Robinson et al., 2018; Papada and Kaliampakos, 2019; Bouzarovski and Petrova, 2015; Middlemiss and Gillard, 2015; Thomson et al., 2017).

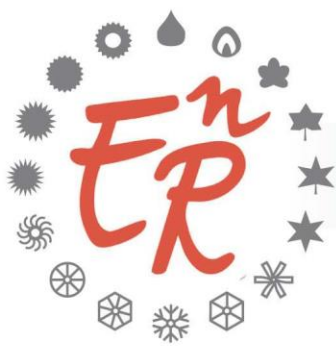
Measurement of energy poverty and identification of the most vulnerable households are thus an essential premise for the development of sound and effective policy measures, customised on the local context. Otherwise, for example, the understanding of an observed fall in the energy consumption could hardly be linked with the impact on the well-being of households. Indeed, the fall could be relative to the adoption of virtuous energy habits, but it might equally mirror tax evasion or deprivation of energy services, in particular for low-income households (Berry, 2019; Schleich, 2019; Ntaintasis et al., 2019; Romero et al., 2018; Karásek and Pojar, 2018). Another example is relative to an observed rise of energy consumption within households who benefits from an incentive: there may be no adequate information to distinguish between a “negative” rebound effect and the necessary improvement to reach a healthy level of indoor comfort.

## **2. To promote energy efficiency measures as key solutions to energy poverty, allowing for multiple benefits and structural change, and to act at local level.**

Social policies, such as social tariffs or electricity and gas bonus, do not allow consumers to definitively exit from their poverty condition, since they only alleviate the problem and do not act on its causes.

Energy poverty could be dealt within the wider framework of poverty alleviation *tout-court* or as specific issue of energy policy. Regardless the approach, policymakers should focus on specific structural actions to lower the energy need of energy poor households, combined with both short-term measures, such as the aforementioned subsidies, and general economic measures and reforms, aimed at raising the national income as a whole.

National Energy and Climate Plans, recently submitted by MS to the European Commission in a draft version, may represent a good place to analyse the problem in



a multidimensional way, assessing its implications and opportunities in terms of, among others, social equity and multiple benefits, available financing tools, and split incentives.

Indeed, literature agrees about social adverse consequences of energy poverty on social exclusion and social cohesion, due to lower participation in social activities. The consequent worsened quality of life, combined with associated indoor air pollution, brings to negative effects of physical and mental illnesses, having implications on public health (Liddell and Guiney, 2015; Liddell and Morris, 2010; Ntaintasis et al., 2019; BPIE, 2014; Reyes et al., 2019). Thus, energy renovation of buildings would embody several multiple benefits that, if opportunely translated into economic values in the investments' business plan, may shorten their payback period, increasing the credit worthiness of low-income people, having limited financial means and lack of collaterals. Besides, poorest deciles of the population are those where retrofit actions are usually more urgent, being more likely they live in non-refurbished homes with high fuel costs (Schleich, 2019).

To this aim, policy measures should provide real incentives to low-income owners or tenants to implement an energy efficient renovation of their homes: lower taxes, and/or higher social transfers; higher cash transfer in the case of subsidy; lower interest rates and/or longer period for re-payment of a loan (Wadud et al., 2009; Berry, 2019; Schleich, 2019).

Including renters among the eligible subjects of energy efficiency policies is related to the split incentive dilemma, where owners have no incentive to make investments whose benefits are enjoyed by tenants. This problem is also especially acute for low-income residents, and policy measures should find solutions to provide incentives to both owner and tenant, defining how monetary savings due to energy efficiency are split out among the two parties (Bird and Hernandez, 2012).

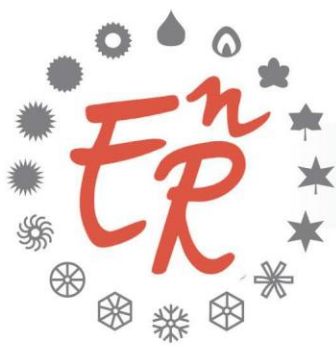
### **3. To develop an integrated approach to tackle with energy poverty and to elaborate policy responses at country level.**

The policy dialogue among competent ministries and the coordination among institutions should be improved. The EU guidance in energy poverty definition and measure could be a facilitator to achieve this result. Involving different institutions is very important since they could provide complementary insights into energy poverty dimension and be able to monitor how the energy poverty condition of a household evolves in time.

A national Observatory could be the right place where sharing expertise and working together on common projects. The integration of different databases, managed by different institutions, could be a target for improving information on energy poverty and could constitute a project to be developed in a national Observatory.

In this context, energy agencies could play a key role, usefully cooperating with other institutions, in the statistical field and in other ones.

First, energy agencies could work with regional and local institutions to target the use of structural funds. The governance should start from the political central level which allocates the resources in the Operational Programs and go down to the regional and local level, including also social housing. In different regions of the same country the investments needed to alleviate energy poverty or to implement energy efficiency solutions could substantially change, and this is why a regional and local approach to



the problem is envisaged. In this context, national energy agencies could provide useful information about the different options for financing energy efficiency interventions, as well as support in implementing awareness energy efficiency programs to enhance behavioural change, where applicable.

Second, energy agencies could contribute to the identification of consumers eligible for measures against energy poverty, for example by looking at Energy Performance Certificates, as proven by existing strategies to alleviate energy poverty mentioned in the questionnaire. Although EPC certainly is a useful tool, it should be considered that referring to EPCs could provide partial information, since they are computed in simulated conditions and they not refer to the effective use of a building. For this reason, they do not take into account subjective comfort levels which should, in some objective way, enter in the energy poverty measurement.

**4. To examine energy poverty implications in terms of cost distribution of the measures adopted to achieve the long-term energy and environmental objectives.**

Energy poverty policy measures focus on specific income groups. At the same time, existing energy policy measures (for example art. 7 obligation scheme and alternative measures) could have differentiated impacts on income groups, in terms of who is paying their cost or who has access to the financial incentives.

If the distributive effects of energy policies are regressive, that is to say low income households have a higher burden compared to richest ones, compensation should be envisaged or policy reforms should be implemented. Regressive effects of policy measures may worsen energy poverty phenomenon, as well as indoor environmental conditions and, more in general, well-being of households (Berry, 2019)

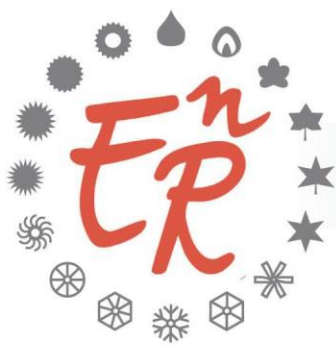
**5. To recognize that training and information campaigns are essential to achieve a behavioral change and then boost the rate of energy renovation of dwellings of household in energy poverty.**

A full range of measures, including training, information, dissemination, and awareness raising activities, are needed to boost renovation of dwellings owned or rented by energy poor households

To date, little attention has been given to dissemination and public awareness of the energy poverty issue (Bartiaux et al., 2016), as well as the way the topic is dealt with by the media (Scarpellini et al., 2019). As a matter of fact, acknowledged good practices in a given country or region may result as unsuccessful somewhere else simply because the local population is unaware of its benefits, in particular energy poor households (Reyes et al., 2019).

Information campaigns are a key driver to reflect the positioning, analysis, and proposals of the different involved stakeholders able to address opinions, such as policymakers, energy agencies, industry associations, public and private institutions, citizens. This could influence future political decisions, from a top-down perspective (Delina, 2018) as well as solve the inaction of (above all) energy poor households, who do not know where and to whom ask for support, from a bottom-up approach (Sanz-Hernández, 2019).

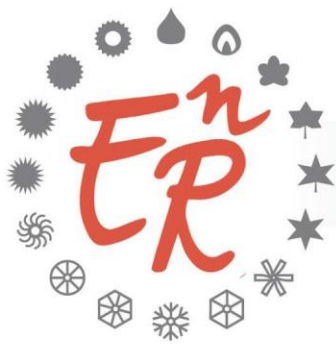
A desirable shift from reactive to proactive behaviour, induced by training sessions and information campaigns, may bring to a more participatory process in the



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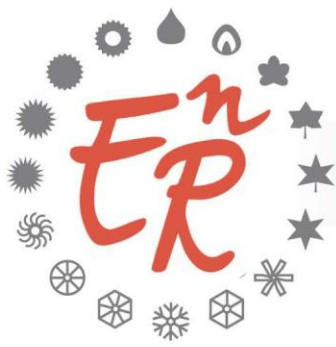
development of policy measures, with higher coordination between administrations and collaboration between public and private entities. As a final result, it could lead to mobilise more financial resources from the supply side, and its wide and cost-effective utilisation from the demand side (Sanz-Hernández, 2019).

*The content of this document does not necessarily reflect the opinion of all the European Energy Network Members*



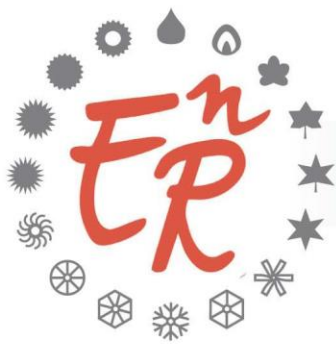
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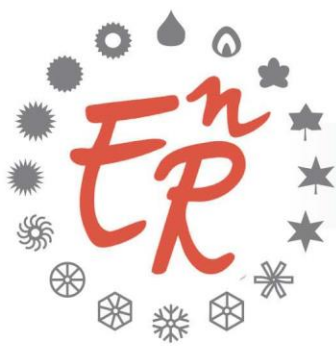


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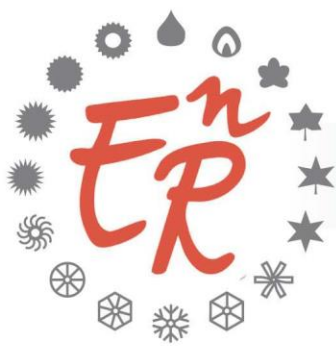


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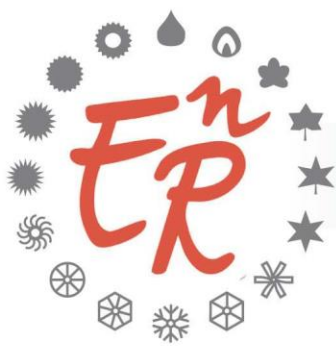
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## VI. Annex – The questionnaire

### EnR Survey on Energy poverty

#### Section A - Definition, measure, roles & mandates

A1 - Is there an agreed definition of energy poverty in your country?

- Yes  
 No

A1 a - (if you answered yes to A1) - Please, report the agreed definition of energy poverty in your country

Your answer

A2 - Has energy poverty ever been mentioned in any national policy document?

- Yes  
 No

A2 a - (if you answered yes to A2) Please state which document

Your answer

A3 - Is there any estimation of energy poverty in your country?  
(Please refer also to the estimations based on unofficial definitions)

- Yes  
 No

A3 a - (if you answered yes to A3 and the definition is unofficial)  
Please specify the scope of the definition underlying the estimation

Your answer

A3 b - (if you answered yes to A3) - Please state the number of energy poor households, the share on total population and the year of reference (If more than one choose the more relevant according to your opinion)

Your answer

A4 - Which are the competent ministries/departments/agencies in dealing with energy poverty? Is there a coordination among public and private stakeholders (as in the EU Energy Poverty Observatory, EPOV?)

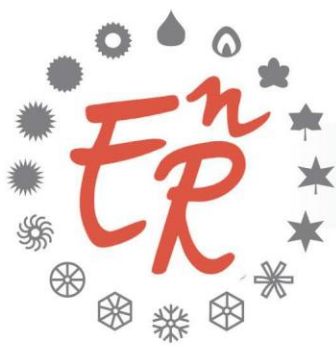
Your answer

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## EnR Survey on Energy poverty

### Section B - Description of the energy poverty measure

#### Proposed taxonomy

In what follows, please refer to the following, proposed, taxonomy of energy poverty measures for your answers:

- 1) self reported/subjective measures: poverty condition measured basing on households' personal assessment of their situation, such as whether their home is not adequately warm.
- 2) Objective measures: poverty condition measured basing on indicators, according to two possibilities
  - 2a) Absolute measures: they rely on factors which do not depend on other households, also defining essential conditions for households to reach a minimum welfare level
  - 2b) Relative measures: they compare the situation of a household with the "typical" one of other households (e.g. 10% rule, LIHC, energy expenditure greater than twice the average)

**B1 - Is there an agreed statistical definition? (Those who answer "no" can proceed to Section C)**

- Yes
- No

**B2 - How many measures of energy poverty are there in your country?**

- One
- Two or more

**B3 - Given the proposed taxonomy, please classify the energy poverty measure according to the following classes**

- Self-reported/subjective measure (e.g. "adequately warm home")
- Objective-absolute measure (e.g. minimum heating requirements)
- Objective-relative measure (e.g. 10% rule, LIHC)
- Poverty Intensity (e.g. the amount of income transfer that can lift a family out of energy poverty)

**B3 a - If your energy poverty measure is not covered by any of the categories above, please describe the relevant category here**

Your answer

---

**B4 - Please describe the energy poverty measure(s) adopted**

Your answer

---

**B5 - For each energy poverty measure, please specify the employed data (income or expenditure, if cooling has been considered, ...) and the corresponding statistical sources (harmonised vs national sources), with their periodicity**

Your answer

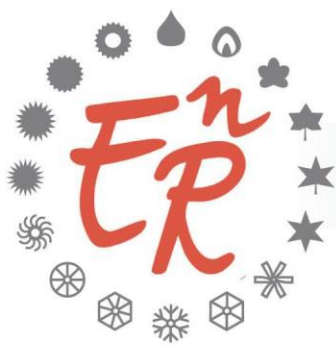
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## EnR Survey on Energy poverty

### Section C - Policy measures in force

C1 - Which measures to alleviate energy poverty exist in your Country?

Your answer

C1 a - Which type of measures are they?

- Specific measures
- Included in wider measures (as some provisions in Italian Ecobonus)

C2 - For each policy measure specify the number of involved households, their financing costs and the associated benefits, in terms of achieved energy saving (or in other terms if this informations is not available/applicable)

Your answer

C3 - Are you aware of any policy measure to alleviate energy poverty implemented at local level?

- Yes
- No

C3 a - (only if you answered yes to C3) Please indicate which type of measures

- Specific measures
- Included in wider measures

C3 b - (only if you answered yes to C3) In case of measures at municipal level, does the municipality participate to the Covenant of Mayors?

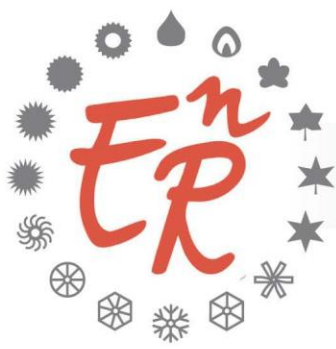
- Yes
- No

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## EnR Survey on Energy poverty

### Political action

D1 - Is there a national energy poverty observatory

- Yes  
 No

D2 - Is its creation envisaged?

- Yes  
 No

D2 a - If relevant, please specify the next political steps relative to the creation of a national energy poverty observatory

Your answer

D3 - Do you agree with the Commission's choice of including energy poverty objectives as optional in National Energy and Climate Plans?

- Yes  
 No

D4- Do you consider useful the work of EPOV?

- Yes  
 No

D5 - Which is your preferred option among the following

- Unique energy poverty measure with Eurostat charged of collecting data  
 Energy poverty measure chosen by each country  
 Unique energy poverty measure together with more specific measures chosen country by country according to their specific characteristics

D5 a - If you would prefer another option, please describe it

Your answer

D5 b - If you choose the third option, do you think a composite indicator should be developed?

- Yes  
 No

D6 - Please state which of the options proposed in question D5 do you consider the best one for monitoring the policy measures to alleviate energy poverty and why

Your answer

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