

# European Energy Poverty

## Agenda Co-Creation and Knowledge Innovation (ENGAGER 2017-2021)

### Policy brief no. 1, December 2018

*Energy poverty – the inability to secure needed levels of energy services in the home – is widespread and expanding across Europe and the world. This policy brief brings together the initial findings and recommendations of the ENGAGER 2017-2021 Action, supported by COST (European Co-Operation in Science and Technology). ENGAGER brings together a diverse and extensive body of stakeholders to help understand and address the energy poverty challenge. ENGAGER consists of four Working Groups (WGs) which have each prepared a separate section in the brief.*

**Editor:**

**Stefan Bouzarovski (UK)**

Published at the University of Manchester, 2018.

Photographs courtesy of Pixabay under a CC0 license.

COST is a funding agency for research and innovation networks. COST Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts their research, career and innovation.





# Table of contents

|                                                                        |    |
|------------------------------------------------------------------------|----|
| 1. Towards harmonized regional energy poverty assessments.....         | 3  |
| 1.1 Context .....                                                      | 4  |
| 1.2 Key gaps and trade-offs.....                                       | 5  |
| 1.3 Ways forward.....                                                  | 7  |
| 2. The challenge of energy poverty measurement .....                   | 9  |
| 2.1 Context .....                                                      | 10 |
| 2.2 Key gaps and ways forward.....                                     | 12 |
| 3. The psychosocial impacts of energy poverty.....                     | 14 |
| 3.1 Context .....                                                      | 15 |
| 3.2 Key gaps and ways forward.....                                     | 16 |
| 4. Energy poverty policies: reviewing the policy design.....           | 18 |
| 4.1 Context: moving beyond segmented policies .....                    | 19 |
| 4.2 Gaps in existing policies .....                                    | 19 |
| 4.3 Ways forward.....                                                  | 20 |
| 5. References.....                                                     | 23 |
| 6. Appendix: The regional dimension of EU energy poverty policies..... | 25 |

# 1. Towards harmonized regional energy poverty assessments



Ute Dubois (FR), Margarita Assimakopoulos (GR), Philipp Biermann (DE),  
João Pedro Gouveia (PT), Theoni Karlessi (GR), Ioanna Kyprianou (CY),  
Giulio Mattioli (DE), Lina Murauskaite (LT), Anca Sinea (RO)

## **Working Group 1:** ***Integration – transforming the state of the art***

- In Europe, more attention should be given to regional assessments of energy poverty.
- Regional energy poverty analyses should include transport energy poverty.
- The development of common indicators and methodologies is necessary in order to analyse energy poverty at the regional scale.



## 1.1 Context

WG 1 aims at transforming the state of the art in energy poverty analysis based on recent research developments in various disciplines. Our first policy brief addresses the question of scale in energy poverty research and policy across the COST region<sup>1</sup>. We propose to complement the currently existing national approaches by regional approaches based on common indicators throughout the European Union (EU).

We propose that in Europe, energy poverty should not be analysed only at a national or supra-national level (that is groups of countries) but also at smaller, regional scales. Identifying European regions with different energy poverty or energy vulnerability characteristics would help analysing key drivers of energy poverty in different contexts.

Households are affected by energy poverty not only within their homes but also when it comes to satisfying their mobility needs. In certain contexts, housing energy poverty and transport energy poverty add up, with severe impacts on the affected populations. Regional patterns can be identified in that respect.

This will allow comparisons and favour exchanges of good practices between regions. The common indicators approach will allow for a bottom-up consideration of drivers of energy poverty while keeping the measures comparable between different regional entities and scales.

Energy poverty over the years has drawn increasing attention among different academic disciplines and across policy fields.

Whereas there is neither a common definition nor common measurements of energy poverty throughout Europe, the European Commission has recently funded the creation of a European Union Energy Poverty Observatory (EPOV, [www.energypoverty.eu](http://www.energypoverty.eu)) to improve the availability of information on energy poverty and on measures to combat it. This has led to significant improvements in the transparency of information on energy poverty at the level of countries and its availability for a larger public.

However, some studies that consider regions instead of states highlight that in some cases subnational entities are more similar across countries than within countries. These similarities result from the uneven distribution of energy poverty between regions and from the differences in the natural attributes those regions share, suggesting that a regional assessment of energy poverty might be useful.

---

<sup>1</sup> **COST Members:** Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Montenegro, The Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom and the former Yugoslav Republic of Macedonia.

**Co-operating Member:** Israel.



At the EU level, there is some recognition of the fact that energy poverty should not only be tackled at the national level but that it has a regional and local dimension as well. More information on the regional dimension in the EU's energy poverty policy can be found in the appendix.

### Similarities among subnational (NUTS2) entities (regions) in relation to energy poverty

While it is still common in some contexts to compare regions by national borders (e.g. in terms of GDP, unemployment etc.), regional comparison and evaluation have become more and more prominent to gain insights on subnational entities. But aggregation on a national level means the loss of information on regional differences.

In the context of a report as part of the 'ESPON 2013 Programme', regional differences of socio-demographic and economic indicators in Europe were mapped to highlight the importance of subnational analysis in the framework of energy poverty risk. We listed some of the indicators directly connected to energy vulnerability and deprivation. Examples of indicators/drivers of Energy Poverty at the regional level:

**Climate:** Mean minimum (January) and maximum (July) temperatures in Puglia, IT (-1 to 36°C) are more similar to Lisbon, PT (3 to 36°C) than to Valle d'Aosta, IT (-13 to 24°C) which compares to Stockholm, SE (-14 to 27°C).

**Fuel costs:** The difference in Fuel Costs (in % of regional GDP) is larger between Rome, IT and Abruzzo, IT (difference: 5 percentage points) than between Rome, IT and London, UK (difference: 0.2 percentage points).

**Unemployment:** The long-term unemployment (as % of total unemployment) in Mazowieckie, PL around Warsaw (43%) is as high as in Ile de France, FR around Paris (43%) while the neighbouring region Warminsko-Maurskie, PL (59%) rather compares to Norte, PT (53%) in Northern Portugal.

**Age dependency ratio:** The age dependency ratio (Pop. >65/Pop. 15-64) of Comunidad de Madrid, ES (21%) equals the one of Praha, CZ (22%) whereas the dependency ratio of the northern neighbouring region Castillay León, PT (34%) is the same as in Peloponnes, GR (35%).

Source: Velte et al. 2010.

## 1.2 Key gaps and trade-offs

The development of regional assessments of energy poverty requires to address the following knowledge gaps:

- The difficulty to compare regional patterns of energy poverty and vulnerability which results from the use of various methodologies both between countries and within countries.
- The exclusive focus in most countries on energy poverty within the home, which neglects the existence of a similar, although distinct, issue of transport energy poverty.
- The lack of a common database which includes information on energy poverty both at national and regional scales.

Associated policy gaps include:

- The absence of energy poverty in the policy agendas of many countries and sometimes denial that energy poverty is an issue at all within certain territories.
- The lack of publicly available and representative national and regional data that would allow comparisons of European regions at regular (and frequent) intervals.

More generally, as shown in table 1, a reflection on the relevant scale of energy poverty analyses should consider the existence of various gaps and trade-offs.

**Table 1.1: The use of different geographical scales and associated trade-offs for energy poverty and vulnerability analysis.**

| Scale of analysis                 | Purpose                                                                                                                    | Added value                                                                                                                                          | Tools and indicators                                                                                                                                                                                           | Usage                                                                                                                                                                                                                                                          | Limitations                                                                                                                                                                                                                         |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>National or supra-national</b> | Macro-analysis of the intensity of energy poverty & identification of main drivers in a country or in groups of countries. | Useful to build typologies of countries or groups of countries.                                                                                      | Several national indicators<br>Energy poverty maps (see for example EPOV website).                                                                                                                             | Definition of priorities of national energy poverty policies.                                                                                                                                                                                                  | Available indicators are still imperfect and would need further refinements. Grouping countries into regions only allows very general comparisons.                                                                                  |
| <b>Regional</b>                   | Identification of infra-national patterns and drivers of energy poverty & vulnerability.                                   | Allows a more differentiated analysis, to account for regional variations in climate, incomes, housing characteristics, degree of urbanization, etc. | Some regional indicators are available for EU regions; could be used to build regional energy poverty or vulnerability maps at EU level.<br>At the level of countries, some regional analyses have been built. | Identification of different geographical patterns.<br>Identification of regions with similar patterns of energy vulnerability.<br>Targeting of most vulnerable regions.<br>Definition of regional approaches that would also include transport energy poverty. | In large regions information is aggregated and necessarily imprecise.<br>At EU level: not many indicators available.<br>At the level of countries, more indicators, but they do not allow for international comparisons of regions. |

|                   |                                                                                                                  |                                                                                                                                               |                                                                                                    |                                                                                                                                                                                                                   |                                                                                                                                               |
|-------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
|                   |                                                                                                                  |                                                                                                                                               |                                                                                                    | Integration of energy poverty policies in regional development instruments and planning.                                                                                                                          |                                                                                                                                               |
| <b>Local</b>      | Analysis of local areas with an objective of identification of precise areas that could be targeted in priority. | Based on local data, therefore much information is available.                                                                                 | Local indicators and maps are generally grouped at the regional and sometimes at a national level. | Small-scale identification of regions with high levels of energy poverty or vulnerability. Geographical comparisons with high-resolution level. Definition of priority areas and priority actions for some areas. | The maximum scale is currently the country because no comparable data are available to compare regions in different countries.                |
| <b>Individual</b> | Characterization of the precise situation of a household.                                                        | Detailed information on intensity of energy poverty and on main drivers. This allows to address precisely the difficulties of each household. | Individual characterization made through diagnoses.                                                | For concrete interventions to address energy poverty at the household level.                                                                                                                                      | Individual analyses difficult to compare due to the diversity of situations. Therefore, they are difficult to use for policy making purposes. |

## 1.3 Ways forward

We consider that developing a coherent and comprehensive strategy to assess energy poverty at the regional scale will allow better understanding of the specificities of energy poverty across regions with similar characteristics. This assessment should take into account social aspects (for example poverty), climatic specificities of regions, structural aspects (for example urbanization, building typologies) as well as energy and transport characteristics of regions to interconnect the domestic vs. transport energy divide.

We recommend that more effort should be made for collecting and comparing empirical and theoretical research on energy poverty on a subnational level in Europe as a whole. Comparative empirical studies should deliver results and measures that make it possible to compare those regional features of energy poverty between countries and not only within countries. This could also help to construct a concept of energy poverty that can be analysed in the context of already existing information on health and/or climate-related regional research results.



In order to implement a European-wide energy poverty analysis at a regional scale and the elaboration of corresponding energy poverty maps, the following parameters could be considered (among others): climate characteristics in different regions (climatic regioning), population and wealth distribution, buildings characteristics, energy consumption levels and patterns, energy resources availability, health and mortality data, as well as data on transport. The combination of these parameters could allow the development of a European energy poverty map that would allow a characterization of regions. Therefore, our key messages are:

#### **Development of regional assessments of energy poverty:**

- Create a regional typology of energy poverty including among others the climatic characteristics of regions is one important objective. For example, southern areas of Portugal, Spain, Greece, and France may be classified in Mediterranean energy poverty, while the northernmost areas may be classified as Continental energy poverty. Care should be taken however whenever these typologies are used, to account for national circumstances, building energy efficiencies, energy prices, the institutional framework etc. Future work will be needed to understand how these typologies could be built.
- Identify hotspot regions for local action, allowing for more targeted and efforts on an adequate regional scale that would result in more effective tailored-made measures and policies focused on the most significant issues, which may differ from region to region. Certain regions could be identified as priority regions for energy poverty measures (research programmes, assistance to local authorities or actors in these regions, etc.).

#### **Inclusion of transport poverty in these regional assessments:**

- Investigate which indicators are available to assess the incidence and depth of transport energy poverty in Europe, at the national and sub-national level, building on initial efforts in this direction in some EU Member States (for example France and the UK).
- Investigate whether domestic and transport energy poverty trends overlap at the national and sub-national level – which would raise issues of ‘double energy vulnerability’.

#### **Development of common methods to compare European regions, through:**

- Developing a universal methodology on regional analyses to identify factors or drivers that are most important on the definition of energy poverty and a dynamic database to collect regional and more reliable data at the level of Eurostat.
- Identifying regional energy poverty patterns in Europe that do not necessarily coincide with national borders. Researchers and policy-makers could learn / exchange on good practices by looking at similar (sub-national) regions in different countries.
- Creating, through the proposed regional approach on energy poverty and inter-state cooperation, the possibility to influence policies and legislation. This would result in the spread of good practices, more suitable measures based on regional issues and conditions (climate, market, historic heritage, social conditions, etc.).

## 2. The challenge of energy poverty measurement



Harriet Thomson (UK), Siddharth Sareen (NO), Giulio Mattioli (DE), Ioanna Kyprianou (CY), João Pedro Gouveia (PT), Joanna Mazurkiewicz (PL), Miguel Brito (PT), Nikolas Katsoulakos (GR), Piotr Lis (PL), Slavica Robić (HR)

### Working Group 2:

#### *Indicators – developing an operational energy poverty framework*

- Deploy a wide range of quantitative and qualitative indicators to address the multi-dimensional issue of energy poverty.
- Enable the systematic uptake of household, local and regional context-specific data on energy poverty.
- Target the differential impacts and inter-sectoral linkages that have been identified in customized ways.

## 2.1 Context

WG2 considers the operationalization of a multi-scalar, COST-wide framework on energy poverty. In the first of a series of policy briefs, we provide an overview of what is currently known about energy poverty in COST countries, the range of indicators available, and ways to improve data provision. This brief focuses on the pan-European level. Future outputs will address sub-national data and indicators.

A wide range of relevant indicators are available to stakeholders at the European level, covering themes such as housing quality, energy expenditure, household income and more. Rademaekers *et al.* (2016) provide a comprehensive list of primary and supporting indicators across Europe in Annex 2 of their report.

There is no universally accepted methodology for measuring energy poverty at present, and no common definition either. The prevalent approach is to estimate the phenomenon based on (i) expenditure data from Household Budget Surveys (HBS), or on (ii) self-reported, consensual data from the EU Statistics on Income and Living Conditions (SILC). Within their review of data and indicators, Thomson *et al.* (2017) state that HBS are conducted across Europe to compile weights for Consumer Price Indices. However, HBS datasets are not harmonized. There is significant variation in sampling (ranging from 1,570 to 52,217 households), design, and periodicity (1-5 years across countries). By comparison, the widely used SILC provides comparable annual data for 34 countries, with a minimum EU sample of 121,000 households.

The EU Energy Poverty Observatory (EPOV) posits energy poverty as a multi-dimensional concept that is hard to capture with a single indicator (Thomson and Bouzarovski, 2018). It argues that each indicator signifies a different aspect, thus a combination of metrics should be applied to the phenomenon of energy poverty. EPOV uses four primary indicators: High share of energy expenditure in income (2M), Hidden energy poverty (HEP), Inability to keep home adequately warm (Keep warm), and Arrears on utility bills (Arrears). Table 2.1 displays the latest results for these four primary indicators for COST countries.

Table 2.1: EPOV primary indicator 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 <sup>2</sup> |      |      | 15.9 | 33.2 |
| United Kingdom      | 17.8 | 9.8  | 6.1  | 5.7  |

Source: EPOV and Eurostat (2018).

The primary indicators in Table 1 are intuitive and easy to understand, as explained below:

1. **High share of energy expenditure in income (2M)** – part of population with share of energy expenditure in income >2x the national median. Source: EPOV, 2010 HBS.
2. **Hidden energy poverty (HEP)** – part of population whose absolute energy expenditure is <1/2 the national median. Source: EPOV, 2010 HBS.
3. **Inability to keep home adequately warm (Keep warm)** – based on self-reported thermal discomfort. Source: Eurostat data explorer, 2016 SILC.
4. **Arrears on utility bills (Arrears)** – based on households' self-reported inability to pay utility bills on time in the last 12 months. Source: Eurostat data explorer, 2016 SILC.

Data is available for nearly all 37 Member States and 1 Cooperating Member of COST; the exceptions are Albania, Bosnia and Herzegovina, Israel, and Montenegro.

Energy poverty issues manifest in all COST countries, but to varying extents. For the two SILC-based indicators, energy poverty is most prevalent among Central, Eastern and Southern European countries.

By comparison, the 2M indicator results display less spatial variance. In general, high energy expenditure rates are slightly more common within parts of Eastern, Northern and

---

<sup>2</sup> The 'Keep warm' and 'Arrears' data for Turkey is from 2015.



Western Europe. A recent indicator, the HEP aims to identify abnormally low expenditure. This may indicate households with dangerous under-consumption of energy, but also those with very high energy efficiency. The HEP indicators exhibit more spatial variation than the 2M. Some of the highest rates are in Northern and Western European countries.

## 2.2 Key gaps and ways forward

Our ability to quantify the prevalence of energy poverty is constrained by the current provision of data. At present, there is no dedicated survey of energy poverty anywhere in Europe, and stakeholders are dependent on data collected for other purposes (Thomson and Bouzarovski, 2018: 33). This mainly tends to focus on outcomes rather than drivers.

We base our appraisal of the core gaps in data and indicators on recently published work on this topic (Thomson *et al.*, 2017, and Thomson and Bouzarovski, 2018).

With each point below that defines a gap, we suggest ways forward in appended action points.

We urge an overall shift towards identifying and addressing the drivers of energy poverty:

Linkages between electrical safety and energy poverty:

- An International Federation for the Safety of Electricity Users (Fisuel) campaign emphasizes electric safety upgrade funds for energy poor users<sup>3</sup>.

Differential economic impact of low-quality and unreliable energy supply:

- An improved, disaggregated understanding is essential to target support mechanisms at adversely affected users, such as home-based businesses.

Cooling and summertime issues – SILC stopped asking about air conditioning at home in 2007, and will stop asking about summer (cool) thermal comfort in 2020;

- Mechanisms to collect critical energy poverty information must be retained and embellished by mobilizing new metrics, e.g., through a European Social Survey rotating module, whose next iteration could include such measures.

Focus on external climatic conditions and impact of extreme weather events

- Provision of heating degree days below national level, stopped by Eurostat in 2009, should be reinstated, and cooling degree days should also be collated; understanding of how extreme weather events manifest must be improved. Degree days should ideally be provided for different base temperatures.

Address health and cross-sectoral wellbeing impacts linked with energy poverty

- More detail on individual conditions is required, e.g., graded quality of energy access, and out-of-home cross-sectoral factors like transport energy poverty.

---

<sup>3</sup> <https://www.energypoverty.eu/news/addressing-safety-and-energy-poverty-better-protect-vulnerable-consumers>.



Data on Information and Communication Technologies related energy services:

- Regulatory lag in instituting standards and linked measurements on ICT must be addressed given the increasing role of Internet-of-Things and smart grids.

Lack of systematic uptake of regionally specific and targeted settlement-level data:

- Such efforts occur in ad hoc ways at present; systematization must be based on top-down support for lower-level collection of contextualized metrics.

Absence of household needs and everyday practices from statistical data:

- General recognition of the sociotechnical and political economic drivers of equity, quality and nature of energy access across scales must be translated to more participatory decision-making (UNDP and University of Bergen 2018).

### 3. The psychosocial impacts of energy poverty



Sergio Tirado (ES), Vanesa Castán Broto (UK), Nora Feldmar (HU), Slavica Robić (HR), Néstor Ruiz (BA), Lidija Živčič (SI)

#### **Working Group 3:** ***Dialogues – co-producing emancipatory research and practice***

- The health impacts of energy poverty need to be seen not just in terms of avoided mortality and morbidity but also through a lens of overall psychosocial wellbeing.
- The disparities in the differential health effects of energy poverty across societal groups, its links with other related forms of material deprivation (food and housing) and with issues of stigmatization and Individualization of poverty are not sufficiently understood.
- Governments and corporate actors should have a strong sense of co-responsibility given the significant public health implications of their decision-making and operations.

## 3.1 Context

EWG3 focuses on the exploration of governance practices surrounding the energy poor in all relevant policy areas; it also investigates policy learning processes with a focus on policy transfer and policy mobilities. Our first policy brief addresses issues of mental health and psycho-social well-being in energy poverty research and policy across the COST region. We propose to move beyond excess winter mortality and morbidity towards more comprehensive understandings of the consequences of domestic energy deprivation.

The health effects of energy poverty are still understood primarily in terms of physical health, and more specifically, of excess winter mortality and morbidity as the relationship between cold housing and increased prevalence of heart, respiratory and other diseases has been robustly established (The Eurowinter Group 1997; Healy 2003; Liddell et al. 2015).

This has led to estimates of energy poverty-related mortality within the same order of magnitude of well-known causes of death such as road traffic accidents. However, less importance has been given to the everyday life experiences of domestic energy deprivation as seen through a subjective and/or psycho-social well-being lens. These perspectives emphasize central tents of a person's life in society such as satisfaction, optimism, vitality, self-esteem, belonging, personal autonomy, competence and social engagement (Burns, 2017). In a global perspective, improved access to energy services is understood as part of a progressive process of wellbeing improvement (Castán Broto et al., 2017).

Evidence is mounting on the links between the material conditions of a home with the sense of comfort, happiness and inclusion - or their lack thereof - of the household. Circumstances experienced by the energy poor include inadequate indoor thermal conditions in winter and summertime; restricted budget for the purchase of other basic goods and services such as food, healthcare or clothing; unpaid utility bills and indebtedness to energy providers; and involuntary loss of supply or self- disconnection. These all take a heavy toll on the health and well-being of affected populations. As observed in a cross-country analysis of the 2012 European Quality of Life Survey, higher levels of incidence of poor self-reported health, poor emotional well-being and prevalence of likely depression are observed systematically in households unable to keep their home warm (Thomson et al., 2017). These conditions are unevenly distributed in Europe with countries of Eastern and Central Europe being disproportionately affected.

### **Crisis, gender and mental health among vulnerable people in Barcelona**

The global financial crisis in Spain resulted in negative GDP growth rates from 2009 to 2013 in parallel to the number of unemployed climbing from 1.8 million to 6.1 million people between 2006 and 2013 and widespread cuts in the social welfare system. These have had far-reaching consequences for the health and wellbeing of Spaniards as evidenced by the rising incidence of mental health disorders, especially among the unemployed and households with mortgage payment difficulties (Gili et al., 2013; Urbanos-

Garrido and Lopez-Valcarcel 2015). In Barcelona, a 100-people survey of citizens affected by or at risk of eviction and/or basic supply disconnection compiled by the Platform of People Affected by Mortgages (PAH) and the Alliance against Energy Poverty (APE) found out poor mental health conditions as measured by the Goldberg-Shapiro scale in 70% of men and 83% women. These percentages are practically four times higher than the average scores for the whole population of Barcelona – 16.5% for men and 20.4% for women (Delgado et al., 2018).

## 3.2 Key gaps and ways forward

Our assessment as ENGAGER WG3 of the current state of the art on energy poverty and health highlights the following **key gaps in scientific and policy knowledge**:

- We still have a precarious understanding of the psychosocial impacts of energy poverty beyond its well-established relationship with mental health conditions such as anxiety and depression. Issues around of social exclusion, individualization and stigmatization of the energy poor need to be further investigated and addressed.
- Significant but poorly researched disparities exist in the distribution of the health effects of energy across affected subpopulations. Traditional vulnerable populations such as children, long-term sick, disabled and the elder are cited as the most sensitive segments - with little inquiry or policy action on the unrecognized or underrepresented groups such as single parents or young adults.
- Links between domestic energy, health and related key material underpinnings of everyday life such as housing and food remain to be explored with the aid of 'nexus-thinking' strategies for research and policy design.
- Household coping strategies to make domestic energy services more affordable are helping the energy poor to get by but may negatively affect human health and well-being. Such is the case of the health impacts associated to the use of solid fuels for domestic heat provision.

### **Solid fuels, safe heating? Burning biomass in Hungary and Bosnia-Herzegovina**

Biomass and other forms solid fuels have been traditionally used in many parts of Europe and still are a main source of heat in parts of Central and Eastern Europe as in Bosnia and Herzegovina where the majority of households rely on fuelwood and subsidized coal for heating sources (Robić and Bouzarovski, 2016). A strategy to make domestic heating more affordable, these practices entail various health risks related to indoor and outdoor air pollution and house fires and fire-related accidents, as reported by local environmental organizations in Bosnia-Herzegovina. In Hungary, two thirds of the country's municipalities are supporting households through the 'social firewood' (*szociális tűzifa*). Local activists in this country demand substituting the 'green' unseasoned firewood currently provided for free by local governments by dry firewood with less humidity content and therefore a higher calorific value and less indoor and outdoor emissions.

Against this background we urge all concerned actors to acknowledge **a broader set of issues and mobilize their efforts to respond to the following challenges**:

- 
- Stakeholders with the capacity to effectively intervene on key driving factors of energy poverty - primarily government and utility providers - need to be informed and fully aware of the health and psychosocial effects of energy poverty and related forms of material deprivation. We advocate for a strong sense of co-responsibility in their decision-making and day-to-day action to avoid any harm to human well-being.
  - There is a significant potential to identify and address energy poverty through primary healthcare provision centres (such as GPs in the UK) as these act as a sieve through which most vulnerable persons will eventually circulate. Family doctors need to be aware and alert of symptoms of energy poverty in patients, as well capable to prescribe medical and non-medical advice (e.g., by directing affected patients to social services or supporting organizations).
  - Safe spaces are to be provided by public authorities and civil society for the affected population to be fostered and supported in a non-judgmental way. The empowerment of vulnerable people is seen as an urgent, effective strategy for avoiding the psychosocial effects of energy poverty.
  - Subsidization of solid fuels as a source of domestic heat is to be progressively phased out and replaced by other forms of household support aimed at improving the energy performance of houses and heating equipment.
  - Relevant measures and policies need to incorporate the needs and concerns of the energy poor, as well the views of health practitioners. Procedures need to be in place for these groups to be listened to in the design and deployment of responses with a public health rationale.
  - Academic and policy language needs to be mindful of the stigmatization and victimization of the energy poor in public discourse by, for instance, deliberately substituting 'poverty' or 'vulnerability' terminology with 'right to energy' or 'decent life' wording as part of sensitive communication strategies.

## 4. Energy poverty policies: reviewing the policy design



Rachel Guyet (FR), Lidija Živčič (SI), Ana Stojilovska (HU), Marilyn Smith (FR), Ana Horta (PT), Katrin Grossmann (DE)

### **Working Group 4: *Innovation – Introducing path-breaking perspectives to the understanding of energy poverty***

- Energy poverty is a complex, multidimensional and context-based challenge. Thus, policy approaches need to be comprehensive and coherent with the other public policies.
- To achieve this, multidisciplinary and multi-stakeholder bodies, dedicated to designing energy poverty policies and measures, should be established at the national and local levels in particular.
- In parallel, the adverse impacts of various other policies (fiscal, labour, climate, housing, energy, etc.) on energy poverty need to be assessed and steps taken to minimize or eliminate them.
- Critically, energy poverty policies must be designed through participatory processes, involving the people affected.

## 4.1 Context: moving beyond segmented policies

WG4 develops and consolidates knowledge around innovative solutions and co-benefits for alleviating energy poverty. Energy poverty is estimated to affect 57 million Europeans who suffer from cold homes in winter, and 104 million who cannot keep their homes comfortable in summer<sup>4</sup>. The drivers of energy poverty are multidimensional, context-based and broader than income poverty. Energy poverty is embedded in a broader policy system and results from failures of the socio-economic as well as energy production and consumption systems. As such, energy poverty has both individual impacts on health and life chances of people and collective impacts such as the inability of those affected to fully participate in society or costs for national health systems.

Three main challenges emerge from this general context:

- First, energy poverty is insufficiently recognized as a challenge across EU member states; without a recognition and definition of the problem, it does not become a policy field. Some address it directly, like UK and France, some others address it either indirectly or not at all;
- Second, in countries where energy poverty is clearly defined and identified, there is a mismatch between the understanding of the issue and the policies and measures implemented. A lack of precise knowledge on the profile and needs of the people affected by energy poverty leads to a lack of clear targeting.
- Third, national governments tend to consider energy poverty as a responsibility of local and non-governmental actors. Often, they rank energy poverty among their second-level priorities or withdraw from the challenge at all.

## 4.2 Gaps in existing policies

Within existing policies (in)directly linked to energy poverty, four key gaps can be identified:

- **Insufficient understanding of the multidimensional drivers and consequences of energy poverty.** Additionally, comprehension is low regarding the structural embeddedness of these drivers and consequences, and the adverse side-effects of other policies (fiscal, urban development, health etc.) These shortcomings can result in dysfunctional decision- and policy-making processes.
- **Lack of knowledge and understanding about the profile of households affected by energy poverty and their context-based needs.** Linked to this is the inability to identify households affected by 'hidden energy poverty' plus a wide-spread stigmatization of deprived households which results in untackled injustices and inequalities in energy consumption.

---

<sup>4</sup> <https://www.eumayors.eu/support/energy-poverty.html>

- **Strong focus on short-term mitigation policies** and hardly any focus on the long-term prevention policies, often means that symptoms of energy poverty may be addressed but root causes are not.
- **Segmentation of actions and actors into fields and disciplines** (e.g. social actors tackling energy poverty as a social issue, energy actors as a technical issue), which leads to inefficient and ineffective approaches.

## 4.3 Ways forward

### Designing and implementing comprehensive policies

To be efficient, energy poverty policies need to be context-based and coherent in combining mitigation and prevention approaches, applying short- and long-term activities with multi-sectoral approaches. Innovative policy action should enable synergies with efforts to address climate change and energy system decarbonization. Importantly, people affected by energy poverty need to be placed at the centre of policies with the aim to clearly identify and address their needs.

Three key steps can contribute towards policy improvement:

- Analyse, expose and address the elements of other policies that cause inequalities and injustices that contribute to energy poverty.
- Fully eliminate, or at least reduce, tensions among different policies (e.g. housing policies that prioritize energy efficient construction for well-off people can compete with attempts to address energy poverty), while enabling synergies with the efforts to address climate change and decarbonization,
- When designing new policies in fields that concern energy poverty (as listed above), policy-makers need to pay high attention to inclusiveness and justice, best by directly involving the concerned stakeholders in policy development.

### Inclusive Design

A new housing community, *Mehr als wohnen* in Zurich, Switzerland, was founded in 2007 by cooperatives that wished to develop an innovation and learning platform for non-profit housing.

The community deliberately promoted social diversity and inclusiveness, taking these features into account already in the design phase, so that the buildings could respond to different needs.

In the design phase, organizers invited ‘overlooked’ groups to participate in consultations and contribute to the set-up of the community. Future tenants and local social partners were also involved in the initial design. Today, around 40 groups cooperate with a nearby school and other social networks in the area<sup>5</sup>.

<sup>5</sup> <https://www.mehralswohnen.ch/>



## Creating a dedicated entity

A dedicated body, at national level, with a clear mandate to address energy poverty could help overcome the current segmentation of the actors and actions delivered. To support more effective work, this body could be replicated at regional and local levels. In order to make all policies and measures more coherent, this entity would be responsible for designing and coordinating policies with a broader range of partners. It would also ensure that energy poverty is taken into consideration by all actors when they design and deliver their own policies. This entity would examine the outcomes of broader policies and advice on how to avoid any negative impacts on vulnerable households. Ideally, such an entity would also involve households affected by energy poverty among the representatives.

### Liverpool Healthy Homes Programme

Launched in 2009, the Liverpool Healthy Homes Programme seeks to address the psychological, social and health pathologies resulting from poor quality of housing in the city.

The programme's co-ordinated approach involves 16 different partners, all addressing issues relevant to helping lift households out of energy poverty. Partners represent health practitioners, education institutions, social services, social landlords, the Citizens' Advice Bureau, employment advisors, etc. This initiative, first funded for four years by Primary Care Trust, was subsequently transformed into an agency in charge of housing improvement and integrated into the local authority.

The Liverpool Healthy Homes Programme was awarded several prizes and has now been replicated in other British cities<sup>6</sup>.

## Creating enabling conditions for new approaches

Governments can enable conditions to allow for new policy approaches at both national and local level, according to the respective national context. This may involve moving away from the traditional 'top-down' and 'silo' approaches that currently dominate the policy sphere and overcoming traditional administrative barriers. For example, moving to co-funding mechanisms can make it easier to pursue experimentation such as area-based schemes and, holistic approaches that consider both individual and collective needs. Additionally, creating informal and formal support networks at neighbourhood or city level could be a way to improve the targeting. In parallel, broadening partnerships to include public and private as well as non-public actors could help improve referral systems. Importantly, more holistic approaches can also enable alternative energy business models. All these approaches can foster new ways to address lack of access to clean, modern and affordable energy services.

---

<sup>6</sup> <https://www.gov.uk/government/case-studies/national-conversation-on-health-inequalities-healthy-homes-programme>

## **Making provisions for joint action**

Article 5 of the French law related to a social and solidarity-based economy (i.e. the third sector), adopted in 2013, supports the development of local grouping of actors that aim to co-develop innovative projects dedicated to a specific topic. With this background in mind, Pôle Alpen was created in Grenoble. It is based on broad cooperation of actors from the third sector (Ulisse Group, Cabestan Cooperative), the public sector (Grenoble local authority) and the private sector (Schneider Electric Foundation) to promote cooperation among actors involved in structuring the energy efficiency sector dedicated to assisting vulnerable households. This includes sharing diagnosis and know-how, understanding the needs of affected households, and creating innovative services to meet them<sup>7</sup>.

## **Creating mechanisms to improve participation of the affected population**

Energy policies have often been designed without any specific effort to target vulnerable households. Other policies are implemented without knowing the real needs of the households they aim to help. Going forward in a more effective way, governments should develop more participatory processes in the design of policies, including mechanisms to enable affected people or their representatives to express their voice about their needs. To become actors in the implementation of policies designed for their benefit, this would require training and empowering these people. It may lead to a slower decision-making process, but it can result in more efficient policy content plus increased acceptance of actions by the people affected.

## **The Alliance Against Energy Poverty in Catalonia**

The Alliance Against Energy Poverty (APE) in Catalonia was created when citizens observed how the control of the electricity market by five main energy companies in Spain led to thousands of disconnections. Worried by the situation of people living without electricity, fighting against disconnections became the common cause of citizens. They exerted pressure on the Catalan government to introduce a commitment to universal access to basic services. Their concern led to a legislative citizenship initiative that secured more than 140,000 signatures, which was ultimately approved, adopted and implemented by the Catalan Parliament on July 2015. This law obliges the utilities to protect consumers against water and energy disconnections.

In addition to campaigning, the APE organizes collective assemblies every two weeks, so that people can share their experiences and advice in case of energy or water issues. These assemblies are not led by experts, but by people affected by energy poverty<sup>8</sup>.

---

<sup>7</sup> <http://polealpen.fr/>

<sup>8</sup> <http://pobresaenergetica.es/>

## 5. References

- Bouzarovski S., Tirado Herrero S. 2017. Geographies of injustice: the socio-spatial determinants of energy poverty in Poland the Czech Republic and Hungary. *Post-Communist Economies* 29: 27-50.
- Burns R. A. 2017. 'Psychosocial Well-Being.' In *Encyclopedia of Geropsychology*. edited by Nancy A. Pachana. 1977–84. Singapore: Springer.
- Castán Broto V. et al. 2017. A research agenda for a people-centred approach to energy access in the urbanizing Global South. *Nature Energy* 2: 776–79.
- Cochez N. et al. 2015. *Vulnérabilité énergétique. Loin des pôles urbains chauffage et carburant pèsent fortement dans le budget.*
- Delgado L. et al. 2018. *Radiografies de La Situació Del Dret a l'habitatge La Pobresa Energètica i El Seu Impacte En La Salut a Barcelona Informe I.* Barcelona: Observatori DESC Agència de Salut Pública de Barcelona Enginyeria sense Fronteres Aliança contra la Pobresa Energètica PAH BCN.
- EU Energy Poverty Observatory 2018 *Indicators & Data.* <https://www.energypoverty.eu/indicators-data>
- Eurostat 2018 Data Explorer. [Online] <https://ec.europa.eu/eurostat/data/database>
- Gertz C. et al. 2009. *Chancen und Risiken steigender Verkehrskosten für die Stadt-und Siedlungsentwicklung unter Beachtung der Aspekte der postfossilen Mobilität.*
- Gili M. et al. 2013. 'The mental health risks of economic crisis in Spain: Evidence from primary care centres 2006 and 2010. *The European Journal of Public Health.* 23: 103-8.
- Gouveia J.P. et al. 2018. Designing and Index to map energy poverty at a high spatial scale resolution. Globalizer X Summit ASHOKA and Schneider Foundation 24th and 25th May 2018 Rome Italy.
- Healy J.D. 2003. Excess winter mortality in Europe: A cross country analysis identifying key risk factors. *Journal of Epidemiology & Community Health* 57: 784–89.
- Liddell C. et al. 2015. Excess winter deaths in 30 European countries 1980–2013: A critical review of methods. *Journal of Public Health.* <https://doi.org/10.1093/pubmed/fdv184>.
- Lovelace R., Philips I. 2014. The 'oil vulnerability' of commuter patterns: A case study from Yorkshire and the Humber UK. *Geoforum* 51: 169–82.
- Mattioli G. et al. 2017. Developing an index of vulnerability to motor fuel price increases in England. In: *49th University Transport Studies Group Conference*, Dublin, Eire, 04-06 January 2017. Available from: <http://eprints.uwe.ac.uk/30778>.
- Morrison C., Shortt N. 2008. Fuel poverty in Scotland: Refining spatial resolution in the Scottish Fuel Poverty Indicator using a GIS-based multiple risk index. *Health & Place* 144: 702-717.
- Rademaekers K. et al. 2016. Selecting Indicators to Measure Energy Poverty. <https://ec.europa.eu/energy/sites/ener/files/documents/Selecting%20Indicators%20to%20Measure%20Energy%20Poverty.pdf>
- Robić S., Bouzarovski S. 2016. Energy Poverty in South East Europe: Surviving the Cold. South East Europe Sustainable Energy Policy: SEE Change Net. [http://seechangenetwork.org/wp-content/uploads/2016/10/Energy-Poverty-in-South-East-Europe\\_Surviving-the-Cold.pdf](http://seechangenetwork.org/wp-content/uploads/2016/10/Energy-Poverty-in-South-East-Europe_Surviving-the-Cold.pdf).



Robinson C. et al. 2018. 'Getting the measure of fuel poverty: The geography of fuel poverty indicators in England. *Energy Research & Social Science* 36: 79-93.

Saheb Y. et al. 2015. *Energy Renovation: The Trump Card for the New Start for Europe*. JRC Science and Policy Reports European Commission Joint Research Centre Institute for Energy and Transport Publications Office of the European Union Luxembourg.

The Eurowinter Group. 1997. Cold exposure and winter mortality from ischaemic heart disease, cerebrovascular disease, respiratory disease and all causes in warm and cold regions of Europe. *The Lancet* 349: 1341–46.

Thomson H., Bouzarovski S. 2018. *Addressing Energy Poverty in the European Union: State of Play and Action*. Manchester: EU Energy Poverty Observatory.

Thomson H. et al. 2017 Rethinking the measurement of energy poverty in Europe: A critical analysis of indicators and data. *Indoor and Built Environment* 26: 879–901.

Thomson H. et al. 2017. Health, well-being and energy poverty in Europe: A comparative study of 32 European countries. *International Journal of Environmental Research and Public Health* 14: 584.

UNDP and University of Bergen 2018. *Interlinkages Among Energy Poverty and Inequalities In Accelerating SDG7 Achievement*. Policy Briefs in Support of the First DG7 Review at the UN High-Level Political Forum 2018. [https://sustainabledevelopment.un.org/content/documents/18041SDG7\\_Policy\\_Brief.pdf](https://sustainabledevelopment.un.org/content/documents/18041SDG7_Policy_Brief.pdf)

Urbanos-Garrido Rosa M., Lopez-Valcarcel BG. 2015. The influence of the economic crisis on the association between unemployment and health: An empirical analysis for Spain. *The European Journal of Health Economics* 16:175–84.

Velte D. et al. 2010. *ReRisk. Regions at Risk of Energy Poverty*. Applied Research Project 2013/1/5. ESPON: Luxembourg.

Zhang L. et al. 2018. Mortality effects of heat waves vary by age and area: a multi-area study in China. *Environmental Health* 171: 54.



## 6. Appendix: The regional dimension of EU energy poverty policies

At the EU level, the energy poverty issue is addressed either at a community or national level with few instruments and mentions that acknowledge other levels of intervention (such as the local or regional). With the establishment of the Energy Union, the regional dimension becomes a strategic perspective, and energy poverty is being gradually integrated into this landscape through the market instruments.

The first policies to address the issue of vulnerable consumers in relation to the supply of electricity and gas were Directives 2003/54/EC and 2003/55/EC regarding market regulation for natural gas and electricity. These stated that measures needed to be taken by the Member States in order to protect their citizens against the inability of disconnection, according to national conditions.

After the unprecedented financial crisis in 2008, energy poverty gained the public's attention in Europe. The European Union responded with legislation that was published during the initial years of the crisis (the Internal Market in Electricity Directive 2009/72/EC, the Internal Market in Natural Gas Directive 2009/73/EC, the Energy Performance of Buildings Directive 2010/31/EU and the Energy Efficiency Directive 2012/27/EU). This package of legislation encouraged Member States to act according to the principles of subsidiarity and shape national plans in a way that they would incorporate integrated measures to alleviate energy poverty. Member States were bound to define the vulnerable consumers and to make sure that they benefitted from protection. Moreover, the European Commission had to be notified about all the measures undertaken. Additionally, it should be pointed out that many of the existing European documents increasingly recommend using structural and cohesion funds, which are regional policy instruments, in order to address energy poverty especially through retrofitting programmes.

The Vulnerable Consumer Working Group (VCWG) was formed by the European Commission in 2011, as a first step to advance beyond the national perspective, to grasp the meaning of consumer vulnerability with all its nuances and to harmonize its definition and share best practices of Member States.

Before long, the energy poverty topic was affirmed at a strategic level being progressively sewn into the long-term objectives of the EU. The 2020 Energy Strategy for competitive, secure and sustainable energy initiated the triple objective: to reduce energy consumption, carbon emissions and raise renewable energy consumption. In this context, the issue of energy poverty remained either a European (market integration) or a national issue (based on national intervention and reports). In the 2050 (and 2030) strategy, it was considered as a step forward empowering the national and the local level to create and implement innovative remedies. The Energy Security Strategy from 2014 brought in another dimension – the regional context and the concept of inter-dependency between the Member States. While it did not refer to energy poverty per se, it stressed upon the



disadvantages of having fragmented regional energy markets, from which a number of vulnerabilities could derive, such as the risk of cold homes.

A flagship initiative of the EU is the Energy Union, which embraces energy poverty widely, even at a level of an indicator of energy market performance (in the second report regarding the state of the Energy Union). Even if the accent remains on the Member State, considering the energy market integration objectives, energy poverty cannot continue to be a topic which remains fragmented into national entities only. Therefore, in January 2018, EPOV was launched as part of the European Commission's efforts to address energy poverty across all Member States, aiming to share best practices and provide more accurate statistical assessments of energy poverty across countries.

Finally, in June 2018 energy poverty was indirectly addressed through the new Energy Performance of Buildings Directive (EU) 2018/844, with each Member State having to develop long-term strategies for the renovation of the national building stock, including a range of policies and national actions to target low-income housing with poor energy performance. The Clean Energy for all Europeans proposes a number of measures to surpass the traditional perspective on energy poverty, in recognition of the need to advance towards a more integrated and transnational approach: the Integrated National Plans which provide for reporting, among others, on energy poverty and regional cooperation, or the extended powers of the ACER to deal with transnational issues such as energy poverty.