

Addressing Energy Poverty in the European Union: State of Play and Action



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Executive Summary

Almost 50 million people in the European Union are affected by energy poverty. 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', it is now widely acknowledged that energy poverty is a key societal challenge that should be urgently addressed by Member States. Living in inadequately heated or cooled homes is known to have detrimental implications on respiratory, circulatory and cardiovascular systems, as well as mental health and well-being. Energy poverty has also been shown to exert wider economic and political impacts, beyond the private domain of the home.

Whilst energy poverty is partially driven by low household incomes, and many low-income households are energy poor, energy poverty does not fully overlap with income poverty, and is a distinct issue on its own right that should be addressed through both energy policy and social policy mechanisms.

To help Member States in their efforts to combat energy poverty, the European Commission has financed an exciting new initiative, the EU Energy Poverty Observatory (EPOV). The central aim of EPOV is to engender transformational change in the availability of information about energy poverty in Europe, and measures to combat it.

This report starts by introducing the concept of energy poverty, before outlining what EPOV is, its Tasks and Work Packages, governance structures, activities to date, and forthcoming future activities. Section two reports on the prevalence of energy poverty in the EU, including the methodology used by EPOV. It is argued that energy poverty should be measured using multiple indicators in tandem, as it is a complex multi-dimensional issue that manifests in different ways across households and Member States. On this basis, we find that 44.5 million people were unable to keep warm in 2016; 41.5 million had arrears on their utility bills; 16.3% of households faced disproportionately high energy expenditure (2010); and 19.2% of households reported being uncomfortably hot during summer in 2012.

The third part of this report looks at measures to tackle energy poverty, both in terms of EU legislative requirements and national policy definitions of energy poverty and vulnerable consumers, as well as practical schemes to assist households. We find variations in the approaches taken by Member States, with a combination of social and energy policies, including financial support, social tariffs, and targeted energy efficiency interventions. This suggests significant learning opportunities exist for countries to transfer aspects of different policy frameworks to complement their existing work, or, indeed as part of new action to tackle energy poverty.



Kitteludden, Jokkmokk, Sweden • Margareta Kuhmunen and Lars Kuhmunen, reindeer herders.

The energy challenge in Sweden's remote northern areas is less about lack of electricity and more about frequent outages. Some last only a few minutes, others stretch out over several days. Knowing that outages will come, local residents invest heavily in being well prepared.

"Since we have no neighbours and spend most of the summertime away herding reindeer, we are particularly vulnerable to outages. We have no one to notify the power company. Last year, the house was without electricity for weeks: all the meat we had in freezers spoiled."

1. Introduction

1.1. Overview of the Energy Poverty Concept

As noted by the European Commission (EC), a single definition of energy poverty does not exist across the European Union. According to the EC, energy poverty is often described as the 'inability to keep homes adequately warm'¹. Working on the basis of such an approach, the French 'Grenelle II' Act defines energy poverty as a situation in which a person has difficulty obtaining the necessary energy in their home to meet their basic needs because of inadequate resources or living conditions.

Work commissioned by the EC has defined energy poverty 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'**². In this context, energy services are commonly understood as the benefits brought about by energy use in the home. It is now widely acknowledged that energy poverty is a problem across many EU Member States, affecting almost 50 million people.

A considerable academic and policy knowledge base on energy poverty has developed over the past two decades. It has led to an understanding of energy poverty as the wider inability to secure a socially and materially-necessitated level of end-use energy in the home³. 'Socially-necessitated' in this context is generally taken to mean an energy service standard that allows for full participation in society, while the material dimension refers to consequences on health – because inadequately heated or cooled homes have detrimental implications on respiratory, circulatory and cardiovascular systems, as well as mental health and well-being. Energy poverty has also been shown to exert wider economic and political impacts, beyond the private domain of the home. The condition itself is predicated upon a combination of low household incomes, high energy prices, and low levels of residential energy efficiency, with the manner in which energy is used in the home also playing a role. As such, energy poverty **does not fully overlap with income poverty**, although many low-income households are also energy poor.

¹ <https://ec.europa.eu/energy/en/eu-buildings-factsheets-topics-tree/energy-poverty>

² Pye S, Dobbins S, Baffert C, Brajković J, Grgurev I, Miglio D R and Deane P 2015 *Energy Poverty and Vulnerable Consumers in the Energy Sector Across the EU: Analysis of Policies and Measures* London, Insight_E

³ Bouzarovski S 2014 Energy poverty in the European Union: landscapes of vulnerability *Wiley Interdisciplinary Reviews: Energy and Environment* 3 276–289

1.2. The EU Energy Poverty Observatory

The EU Energy Poverty Observatory (EPOV) is an exciting new initiative financed by the EC (contract Number ENER/B3/SER/2015-507/SI2.742529) to help Member States in their efforts to combat energy poverty. It exists to improve the measuring, monitoring and sharing of knowledge and best practice on energy poverty. It collects and publishes Europe-wide energy poverty data while serving as the focal point of growing networks of policy-makers, research scientists, advocacy groups and community activists interested in the issue. It aims to improve the state of the art on energy poverty detection, measurement and reporting by creating a public forum for the exchange of knowledge on the issue, and the identification of possible policy solutions.

The Observatory is part of a growing drive to consolidate energy policy at the level of the European Union, reflected in the recent Energy Union and Clean Energy Package proposals. It is thus expected that the EPOV will become a decision-support tool for the significant amount of new European Union-wide energy policy, regulation and legislation that will be developed in the near future.

1.3. Tasks and Work Packages

The principal mission of EPOV is to engender transformational change in knowledge about the extent of energy poverty in Europe, and to propose innovative policies and practices to combat it. It has three overarching Tasks:

1. **Improving transparency:** producing statistics and analysis on the number of households in energy poverty and related indicators;
2. **Disseminating information and outreach activities:** disseminating the results of the work of the EU Observatory and serving as a hub for energy poverty;
3. **Providing technical assistance:** making a positive impact to those fighting energy poverty.

In order to realise these overarching goals, the activities of EPOV are organized according to eight interlinked Work Packages (WP):

- **WP1 - Web portal:** development and launch of a specialist web platform;
- **WP2 - Indicator dashboard:** preparation of comparative and robust statistics on energy poverty that are publicly accessible;
- **WP3 - Energy poverty analysis and reports:** production of individual Member State and annual pan-EU energy poverty reports;
- **WP4 - Evidence and best practice:** spans an evidence repository, catalogue of measures, and national case studies;
- **WP5 – Networks:** concentrating on involving existing initiatives and networks, and establishing a new network of stakeholders;

- **WP6 - Communications and training material:** continued engagement with stakeholders, and production of new specialist training material;
- **WP7 - Technical assistance:** provision of specialist policy advice, and collaboration with Covenant of Mayors to implement a practical local-level project;
- **WP8 - Monitoring, quality control and feedback:** project meetings and regular reporting to the Contracting Authority.

1.4. Governance

The EPOV project is delivered via a consortium of six key partner organisations, all of whom are recognised as leaders in their respective fields, with a wealth of experience in addressing energy poverty:

- University of Manchester (UK)
- Ecofys Germany GmbH (Germany)
- European Policy Centre (Belgium)
- Intrasoft International S.A. (Luxembourg)
- National Energy Action (UK)
- Wuppertal Institut für Klima, Umwelt, Energie gGmbH (Germany)

The partners are also supported by a range of subcontracted organisations, spanning the French and Greek national energy poverty observatories, and other organisations with expertise in research, policy, and practice on energy poverty. These organisations have provided specialist advice on setting up an Observatory, and will help organise thematic workshops, and to disseminate the outputs of the Observatory to their networks:

- Asociación de Ciencias Ambientales (ACA) (Spain)
- Alphééis (France)
- Centre for Renewable Energy Sources and Saving (Greece)
- Energy Action Project (France)
- Energy Action Ireland (Ireland)
- Fundación Ecología y Desarrollo (ECODES) (Spain)
- Housing Europe (Belgium)
- University of Birmingham (UK)

The project also builds on and subsumes the EU Fuel Poverty Network (EUFPN). Launched in 2011 by Harriet Thomson, the EUFPN worked to raise awareness of the condition, and to further the dialogue between relevant stakeholders. At the point of closure, its website had received around 27,000 visitors worldwide.

EPOV is governed by three key structures:

1. **Managing Board (MB):** It takes responsibility for day-to-day operational decisions as well as the organisation of its tasks and the production of deliverables. The MB is led by the Project Manager (Dr Harriet Thomson), and contains one representative of each project partner.

2. Steering Committee (SC): This body works closely with the MB, and monitors and assures the quality of the decisions and outputs produced by the MB, whilst also offering strategic guidance with regard to the wider context and purpose of the Observatory. Each partner is represented on this committee. The SC is led by the Project Chair (Professor Stefan Bouzarovski).
3. Advisory Board (AB): The MB and SC are supported by a multi-stakeholder AB composed of around 70 experts from more than 25 countries. Over the duration of the project, its members will be asked to individually provide feedback and advice on all aspects of the Observatory's work. The AB is convened by Slavica Robic (Society for Sustainable Development Design, Croatia). Our AB is the most comprehensive multi-stakeholder group of energy poverty experts assembled to date, and includes two MEPs actively involved with energy poverty legislation (Theresa Griffin and Tamás Meszerics).

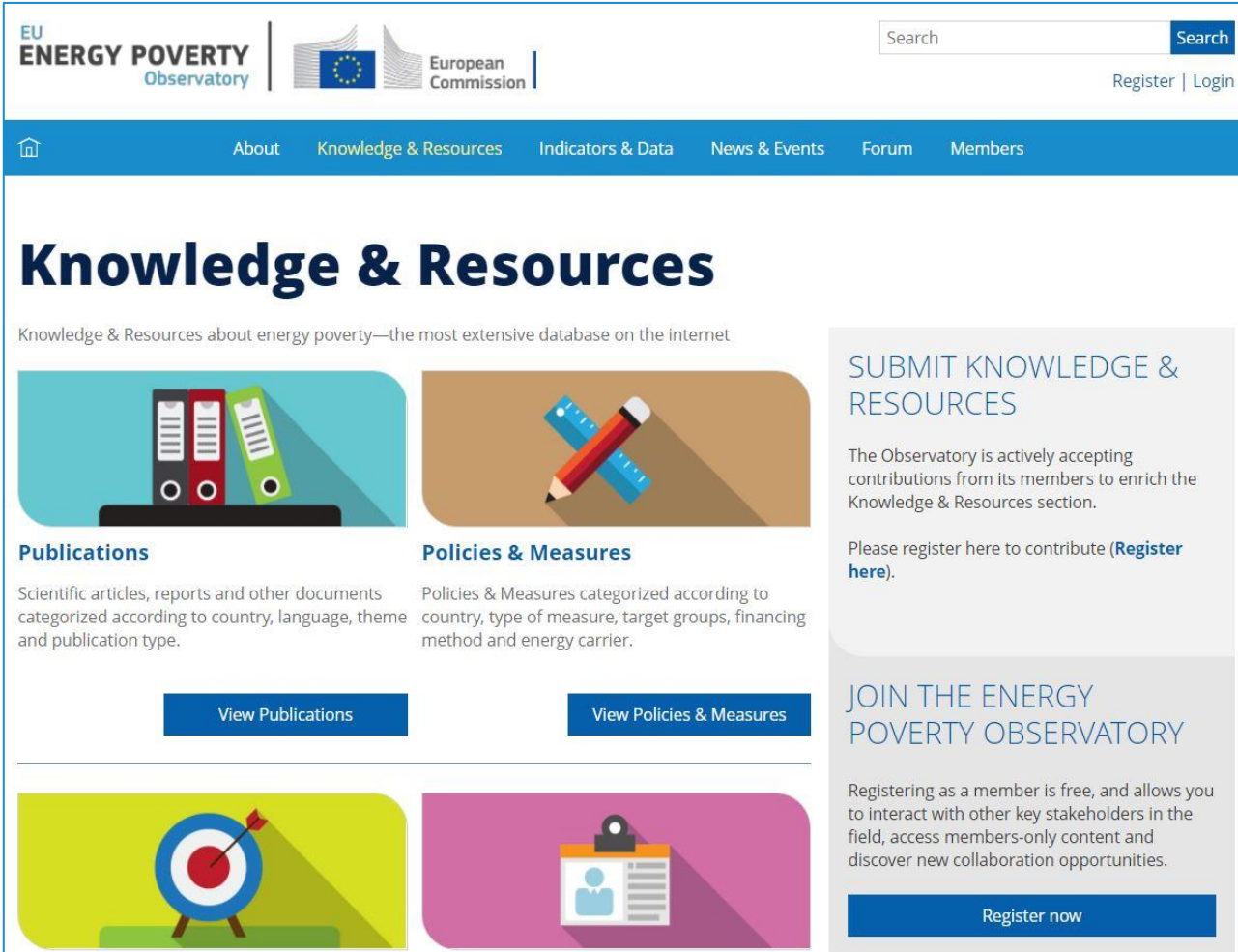
The full list of MB and SC members is detailed in section 6.1, and the AB membership directory can be found in section 6.2.

1.5. Activities to Date

Since its kick off on 30th November 2016, the EPOV consortium has been involved in activities relating to all eight WPs listed in section 1.3. Our primary focus of activity in the first year was developing content for a specialist web portal – including new comparative statistics on energy poverty, an evidence repository, and catalogue of measures – as well as planning for our first high-profile policy conference to publicly launch EPOV, and participating in external events. Further detail on these activities is provided below.

1.5.1. Developing a specialist web portal

For most audiences and users the Observatory portal (www.energypoverty.eu) will be synonymous with the Observatory itself. The web portal is an essential and inseparable element of the task to improve the transparency of energy poverty research, policy and practice across Europe, and is closely linked to the task of disseminating information.

Figure 1 The EPOV web portal (www.energypoverty.eu)

The screenshot shows the EPOV web portal homepage. At the top, there is a navigation bar with a home icon, 'About', 'Knowledge & Resources', 'Indicators & Data', 'News & Events', 'Forum', and 'Members'. The main header features the 'EU ENERGY POVERTY Observatory' logo and the European Commission logo. A search bar is located in the top right corner, along with 'Register | Login' links. The main content area is titled 'Knowledge & Resources' and includes a sub-header: 'Knowledge & Resources about energy poverty—the most extensive database on the internet'. Below this, there are four main sections: 'Publications' (with an icon of binders), 'Policies & Measures' (with an icon of a pencil), 'JOIN THE ENERGY POVERTY OBSERVATORY' (with a 'Register now' button), and a section for 'SUBMIT KNOWLEDGE & RESOURCES' (with a 'Register here' link). Each section has a brief description and a 'View' button.

The EPOV web portal provides the most comprehensive range of energy poverty resources available anywhere worldwide, including:

- **Indicator dashboard**
 - 28 primary and secondary indicators of energy poverty.
- **Publications database**
 - 510+ scientific articles from 1983-present.
- **Catalogue of policies and measures**
 - 290 examples of practical policies and schemes.
- **Training resources**
 - ~50 practical training resources, including videos and toolkits.
- **Members' directory**
 - With 450 members, this is the largest worldwide stakeholder directory.
- **List of relevant organisations**
 - 90 organisations active in research, policy, and practice.
- **Guidance for policymakers**
 - Information on essential points to consider when drafting new policies.
- **News & Events**
 - A regularly updated calendar of local and national events
 - 'Perspective' articles and news pieces.

- **Discussion forums**

- A place to discuss experiences and develop new ideas with others.

In tandem, we continue to raise visibility of energy poverty across the EU via different tools, such as social media and events, with the attempt to reach out to new stakeholders and increase the number of members.

- **Social media**

- Content is posted regularly on [@EPOV EU](#) to around 2,000 followers.

Join the EU Energy Poverty Observatory

www.energypoverty.eu/member/register

Registering as a member is free, and allows you to interact with other key stakeholders in the field, access members-only content, and discover new collaboration opportunities.

1.5.2. Launch conference and other events

On 29th January 2018 the Observatory was publicly launched in Brussels during a high profile conference entitled 'Stepping up the EU fight against energy poverty: The EU Energy Poverty Observatory', which featured around 400 attendees from across Europe and North America.

The launch event provided stakeholders and the wider public with information on the objectives and instruments of the Observatory and was an opportunity to obtain feedback on their expectations of it.

It featured the participation of the Commission's Vice-President for the Energy Union Maroš Šefčovič, Commissioner for Climate Action and Energy Miguel Arias Cañete, and Director-General for Energy Dominique Ristori, along with numerous other high-profile speakers.

The European Parliament was represented by Jerzy Buzek, Theresa Griffin and Claude Turmes, Members of the EP. The Council of the EU was represented by Zhecho Stankov, Bulgarian Deputy Minister for Energy and President in office of the Council. A recording of the panel discussion between Šefčovič, Buzek, Griffin, Turmes, and Stankov, which was moderated by Ristori, can be found on the [European Commission's Audiovisual Services website](#). Similarly, a recording of the conclusions by Miguel Arias Cañete can be [accessed online](#).

Figure 2 Selection of photographs from the launch conference. Photo credits (L-R): European Commission, P-036147; European Commission, P-036147; Stefan Bouzarovski; Stefan Bouzarovski.



In addition to our launch conference, EPOV also hosted the first of its **specialist workshops**. The '1st Spanish Statewide Energy Poverty Forum' took place in Madrid on 23rd April, and was organized by the Spanish Environmental Science Association (ACA). The Forum included a public presentation of EPOV and ACA's 2018 energy poverty in Spain report, an international session on European initiatives, a multi-stakeholder workshop on approaches to addressing energy poverty, and a roundtable with the four main political parties of the Spanish Parliament.

Figure 3 Photo from the 1st specialist workshop. Photo credit: Spanish Environmental Science Association



The consortium has also been an active participant in numerous external events, including:

- 1st Catalan Congress on Energy Poverty 2016 (Spain)
- Meeting with Lithuanian Responsible Business Association 2017 (Lithuania)
- EPC Energy Poverty Task Force - concluding event 2017 (Belgium)
- Energy Action conferences in 2017 and 2018 (Ireland)
- EU Sustainable Energy Week in 2017 and 2018 (Belgium)
- Fighting off Energy Poverty through Streamlined Energy Efficiency Policies in Multilevel Governance Perspective 2018 (Bulgaria)

1.6. Future Activities

Over the next 12 months, the consortium will be involved with a number of new activities, as well as the completion of several outputs. Table 1 below provides a full list of key upcoming activities, categorised according to the Tasks and WPs in section 1.3.

Table 1 Plan of activities in the next 12 months

Task	WP	Activity	Timeline
1	3	Supplementary report on individual and household-level drivers of energy poverty.	Autumn 2018
1	2	Annual update to the indicator dashboard, including adding the 2015 Household Budget Survey data when it becomes available from Eurostat in 2019.	Mid-2019

2	1	Portal updates and evolution – we are continually evaluating the user experience and making modifications to improve the service offered. If you have any feedback on the web portal (or any other aspects of the Observatory), please write to us on contact@energypoverty.eu or find us on Twitter @EPOV_EU .	Continuous
2	4	New national case studies in 2018 from Housing Europe and the European Investment Bank on the Jessica II fund in Lithuania and from Ecoserveis on their innovative work in Spain. Plus additional case studies in 2019.	August 2018 and additionally in 2019
2	3	Individual Member State reports, which will focus on providing a comprehensive snapshot of policy, practice and research activities to fight energy poverty in a given country.	October 2018
2	4	Incorporation of outputs from recently funded European projects, as well as forthcoming projects from the latest Horizon 2020 call 'Mitigating household energy poverty'.	Continuous
2	5	Closer collaboration with the networks of the COST Action 'European Energy Poverty: Agenda Co-Creation and Knowledge Innovation' .	Continuous
2	6	Organise and host the Second EPOV conference.	January 2019
2	6	Second specialist EPOV workshop to be hosted by Housing Europe.	June 2019
2	6	Continued outreach and dissemination activities, including participation at external events, such as the European Week of Regions and Cities (8-11 October 2018), and Catalan Congress on Energy Poverty (8-9 November 2018).	Continuous
3	6	Up to 3 new training and guidance materials intended to promote good practice and meet the gaps in provision identified following analysis of a recent Call for Evidence. The materials will be produced in the most suitable format, but it is anticipated that this will likely include: advice leaflets; guidance notes, introductory briefings and infographics.	September 2018
3	7	Conclusion of a pilot project with the Covenant of Mayors for Climate and Energy to implement practical energy poverty schemes at the municipal level.	December 2018
3	7	Ongoing technical assistance offered to national policymakers for developing policy frameworks to address energy poverty.	Ongoing



22nd District, Budapest, Hungary • Gergely Neményi and Kinga Farkas.

The suburb of Óbuda, Békásmegyer is often referred to as Budapest's 'concrete jungle'. The nickname reflects the predominance of massive, pre-fabricated apartment blocks built between the 1960s and 1980s, under Communist social schemes.

From a distance, noticeable attributes of the 650,000 'panel' apartments in Hungary's large cities include their long, exposed facades — with nothing to provide shading. Those living inside know the walls are thin and insulation is poor. Many occupants report experiencing very high indoor temperatures in summer. With the average salary in Budapest being €600/month, few can afford to buy an air-conditioning unit and keep up with the associated electricity costs.

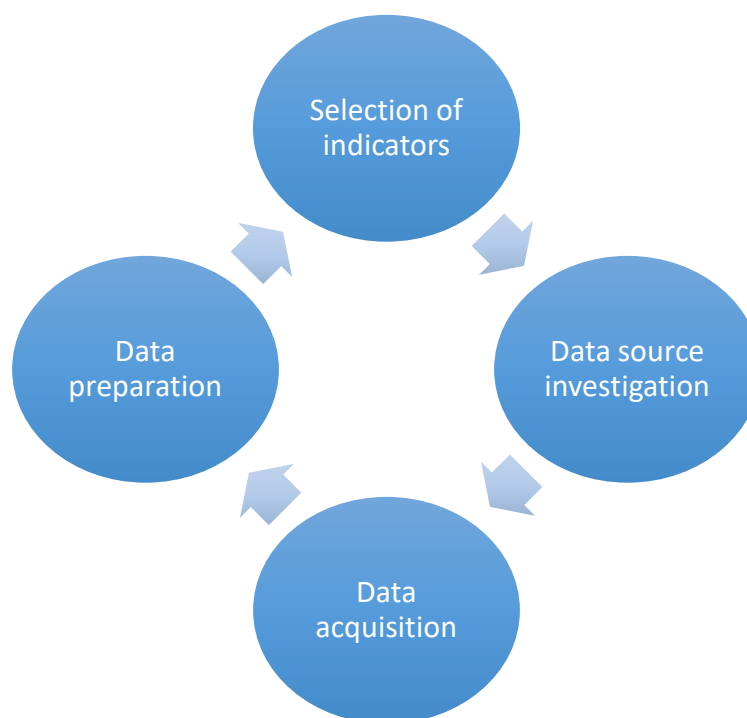
In summer, the living area of Gergő and Kinga's apartment heats up quickly—often reaching 30°C to 34°C. By August, they worry it will be as hot inside as outside, more like 35°C to 40°C.

2. Prevalence of Energy Poverty in the EU

The indicator dashboard facility on the EPOV web portal (WP2) forms an integral element of addressing Task 1 (improving transparency) and Task 2 (disseminating information). Overall, public availability of reliable indicators and accurate statistics will contribute to pushing the state-of-the-art forward in research, policy and practice by providing new insights into the prevalence of energy poverty across the EU. This section reports on the methodology used to select and calculate our indicators of energy poverty, provides some headline statistics on the overall rates of energy poverty, looks at background factors, and provides an energy poverty scoreboard.

2.1. Methodology

The process of compiling harmonised, authoritative statistics for the measurement and comparison of energy poverty across MS has been done in four consecutive steps, as indicated in the diagram below. It is an iterative process that will be repeated several times across the project duration to allow new data and indicators to feature in the indicator dashboard.



In the first step, a review of available datasets and indicators was undertaken using the following criteria to appraise the indicators:

- **Quality of the indicator:** The ability and accuracy of the indicator to capture energy poverty, its drivers and outcomes. This includes sub-criteria that assess:
 - The ability to measure, compare and track energy poverty over time, including seasonal variations;
 - The ability to measure, compare and track energy poverty across Member States;
 - The ability to measure, compare and track energy poverty across different socio-economic groups;
 - Complexity of calculating the indicator.

- **Quality of datasets.** This includes:
 - Availability of data;
 - Comparability of data across time and across Member States;
 - Quality, robustness and completeness of the data.

In performing this task, the consortium has drawn on its extensive research experience and knowledge of the available data sources and indicators in the field, as well as that of the Advisory Board. Particular attention has been paid to the recommendations contained within the European Commission funded report on 'Selecting Indicators to Measure Energy Poverty' (Rademaekers et al., 2016), as well as the earlier review of pan-EU data and indicators conducted by Thomson and Snell (2014).

In the second step, processes to acquire the identified data have been initiated. However, we have experienced some unexpected delays in procuring the full micro datasets for two of the key household surveys, namely the EU Statistics on Income and Living Conditions, and the Household Budget Survey, leading to some missing data points for individual countries.

The acquisition of different (micro- and macro-level) datasets formed the third step, and has involved using appropriate data analysis software to examine the completeness and consistency of coding as well as compatibility of datasets with each other. In the final step, a data preparation strategy has been implemented, providing the basis for the calculation of descriptive statistics (e.g. country means of different energy poverty indicators) to be published on the web portal.

Energy poverty is a multi-dimensional concept that is not easily captured by a single indicator. Our approach to measuring energy poverty has been to use a suite of indicators, which should be **viewed and used in combination**. Each indicator captures a slightly different aspect of the phenomenon. Our intention is that these indicators should be used to give a snapshot of energy poverty issues, which can then be explored in more detail in research and action projects.

Within the EPOV indicator dashboard, we make a distinction between indicators classified as primary, and those classified as secondary:

- **Primary indicators** – those that capture various aspects of energy poverty, and are applied elsewhere in policy and research;
- **Secondary indicators** – the reasons for a secondary classification are twofold. Either the indicator captures facets of energy poverty but perhaps does not meet the quality of indicator criteria listed above, or it is relevant in the context of energy poverty, but is not a direct indicator of energy poverty itself.

The full list of indicators, with a description of the indicator and information about the data source and temporal coverage is given below in Table 2. Data is drawn from four main data sources:

- Building Stock Observatory (BSO): A European Commission initiative that monitors the energy performance of buildings across Europe;
- EU Statistics on Income and Living Conditions (EU-SILC): A widely used pan-EU survey of income distribution and social exclusion;
- Household Budget Surveys (HBS): National consumption expenditure surveys that are used to compile weights for Consumer Price Indices;
- Eurostat Data Explorer: A publicly accessible online resource with macro data on various topics.

Table 2 Summary of EPOV indicators

Indicator name	Data source	Data year(s)	Primary/Secondary	Description
Inability to keep home adequately warm	EU-SILC	2004-2016	Primary	Based on question "Can your household afford to keep its home adequately warm?" This indicator encompasses the prevailing qualitative definition of energy poverty and captures self-reported thermal discomfort issues. It is a recommended indicator by Rademaekers et al. (2016).
Arrears on utility bills	EU-SILC	2004-2016	Primary	Based on question "In the last twelve months, has the household been in arrears, i.e. has been unable to pay on time due to financial difficulties for utility bills (heating, electricity, gas, water, etc.) for the main dwelling?" This indicator captures potential financial difficulties, and is an important indicator as households unable to keep up to date with energy bill payments may experience disconnection of supply. Note, however, that it covers all utility bills, including those beyond energy. In addition, arrears are not possible for some energy carriers, such as heating oil and wood pellets.
High share of energy expenditure in income (2M)	HBS	2010	Primary	The 2M indicator presents the proportion of population whose share of energy expenditure in income is

				more than twice the national median share. This suggests the prioritisation of energy costs over other household costs. The 2M threshold was established on the basis that this represents disproportionately high expenditure. It is a recommended indicator by Rademaekers et al. (2016).
Hidden energy poverty (HEP)	HBS	2010	Primary	The HEP indicator presents the share of population whose absolute energy expenditure is below half the national median, in other words abnormally low. HEP is a relatively new indicator that has been used in Belgium to complement other expenditure and self-reported indicators. It is a recommended indicator by Rademaekers et al. (2016).
Fuel oil prices	BSO	2004-2015	Secondary	Average household prices per kWh generated from fuel oil.
Biomass prices	BSO	2004-2016	Secondary	Average household prices per kWh generated from biomass.
Coal prices	BSO	2004-2016	Secondary	Average household prices per kWh generated from coal.
Electricity prices	Eurostat: nrg_pc_204	2007-2016	Secondary	Electricity prices for household consumers, band DC 2500-5000 kWh/yr consumption, all taxes and levies included.
Gas prices	Eurostat: nrg_pc_202	2007-2016	Secondary	Natural gas prices for household consumers, band 20-200GJ

				consumption, all taxes and levies included.
Presence of leaks, damp, rot	EU-SILC	2004-2016*	Secondary	Share of population with leaks, damp or rot in their dwelling, which can be seen as an indirect proxy of housing quality and living conditions. *However, from 2020, this indicator will no longer be collected annually; rather it will take place every 3 years.
Dwelling comfortably cool during summer time	EU-SILC ad-hoc modules	2007 and 2012**	Secondary	Share of population, based on question "Is the cooling system efficient enough to keep the dwelling cool?" and/or "Is the dwelling sufficiently insulated against the warm?" **From 2020, this indicator will no longer be collected.
Dwelling comfortably warm during winter time	EU-SILC ad-hoc modules	2007 and 2012**	Secondary	Share of population, based on question "Is the heating system efficient enough to keep the dwelling warm?" and "Is the dwelling sufficiently insulated against the cold?" **From 2020, this indicator will no longer be collected.
Equipped with air conditioning	EU-SILC ad-hoc module	2007***	Secondary	Share of population living in a dwelling equipped with air conditioning facilities.

				***Collection of this indicator stopped after the 2007 ad-hoc module.
Equipped with heating	EU-SILC ad-hoc modules	2007 and 2012**	Secondary	Share of population living in a dwelling equipped with heating facilities. **From 2020, this indicator will no longer be collected.
Number of rooms per person (owners, renters, total)	Eurostat: ilc_lvho03	2004-2016	Secondary	Average number of rooms per person in owned, rented, and all dwellings.
Dwellings in densely populated areas	BSO	2004-2014	Secondary	Share of dwellings located in densely populated areas (at least 500 inhabitants/km ²).
Dwellings in intermediately populated areas	BSO	2004-2014	Secondary	Share of dwellings located in intermediately populated areas (between 100 and 499 inhabitants/km ²).
Risk of poverty or social exclusion	Eurostat: ilc_peps01	2004-2016	Secondary	People at risk of poverty or social exclusion (% of population).
Energy expenditure for electricity, gas and other fuels as a share of income, split by income decile	Eurostat: hbs_str_t223	2005, 2010 and 2015	Secondary	Consumption expenditure for electricity, gas and other fuels as a share of income, by income decile.
Excess winter mortality	BSO	2005-2014	Secondary	Share of excess winter mortality.

2.2. Headline Statistics

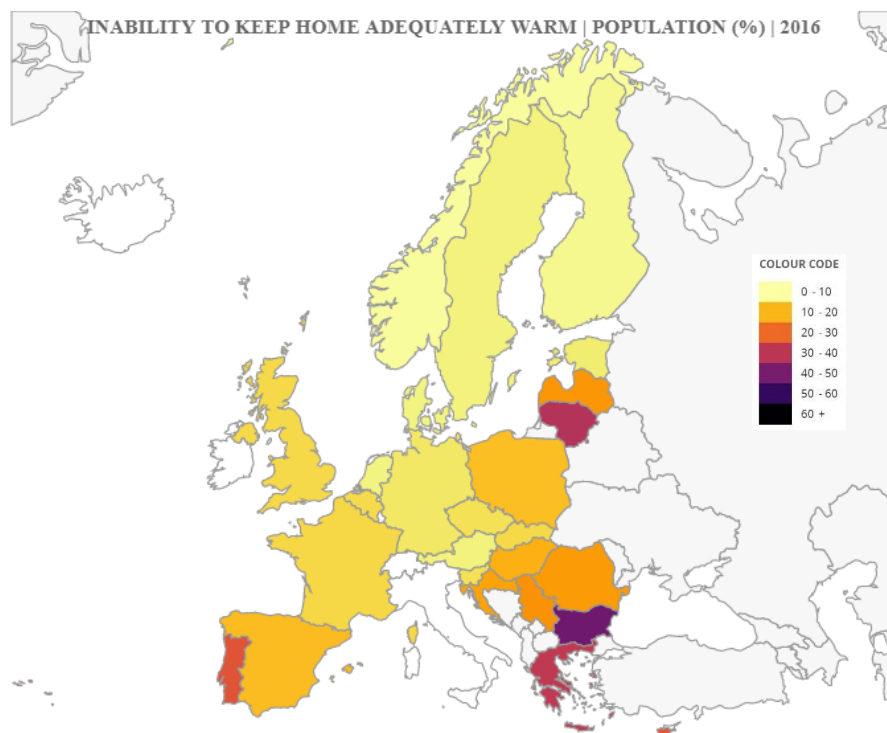
The following section provides a snapshot of energy poverty trends across the EU, based on the four primary indicators listed above plus two secondary indicators concerning summer cooling. It will be complemented with a supplementary report in autumn 2018, containing bespoke analyses of micro data to assess household and individual-level drivers of energy poverty.

2.2.1. Inability to keep home adequately warm

One of the prevailing energy poverty indicators used to capture self-reported affordability asks whether a household can afford to keep their home adequately warm. Within EU-SILC, the question has the following wording: "Can your household afford to keep its home adequately warm?" This indicator has been widely used in national and comparative analyses of energy poverty across Europe.

The map in Figure 4 below shows the overall rates of inability to keep warm across the EU. We find that the highest prevalence occurs within Central and Eastern Europe, as well as parts of Southern Europe.

Figure 4 Map of 'Inability to keep home adequately warm'. Data source: EU-SILC 2016



The national and pan-EU means for this indicator between 2010-2016 are provided in Table 3 below. The prevalence of energy poverty, according to this indicator, has remained relatively static for many countries, as has the EU average. Notably, however, Bulgaria saw a reduction of nearly 30 percentage points from 2010-2016, although it still has the highest rate of energy poverty in the EU at 39.2% of households. There has been a doubling of energy poverty rates in Greece in

2016 compared to 2010, as well as a slight increase in rates in Spain in the latter part of the decade. Malta has seen a significant decrease between 2015 and 2016. Overall, 8.7% of households in the EU reported an inability to keep warm in 2016, which is equivalent to 44,526,600 people⁴

Table 3 Country means (%) for 'Inability to keep home adequately warm'. Data source: EU-SILC 2010-2016

	2010	2011	2012	2013	2014	2015	2016
EU average	9.5	9.8	10.8	10.8	10.3	9.4	8.7
Belgium	5.6	7.1	6.6	5.8	5.4	5.2	4.8
Bulgaria	66.5	46.3	46.5	44.9	40.5	39.2	39.2
Czech Republic	5.2	6.4	6.7	6.2	6.1	5.0	3.8
Denmark	1.9	2.3	2.5	3.8	2.9	3.6	2.7
Germany	5.0	5.2	4.7	5.3	4.9	4.1	3.7
Estonia	3.1	3.0	4.2	2.9	1.7	2.0	2.7
Ireland	6.8	6.8	8.4	10.0	8.9	9.0	5.8
Greece	15.4	18.6	26.1	29.5	32.9	29.2	29.1
Spain	7.5	6.5	9.1	8.0	11.1	10.6	10.1
France	5.7	6.0	6.0	6.6	5.9	5.5	5.0
Croatia	8.3	9.8	10.2	9.9	9.7	9.9	9.3
Italy	11.6	17.8	21.3	18.8	18.0	17.0	16.1
Cyprus	27.3	26.6	30.7	30.5	27.5	28.3	24.3
Latvia	19.1	22.5	19.9	21.1	16.8	14.5	10.6
Lithuania	25.2	36.2	34.1	29.2	26.5	31.1	29.3
Luxembourg	0.5	0.9	0.6	1.6	0.6	0.9	1.7
Hungary	10.7	12.2	15.0	14.6	11.6	9.6	9.2
Malta	14.3	17.6	22.1	23.4	22.1	13.9	6.8
Netherlands	2.3	1.6	2.2	2.9	2.6	2.9	2.6
Austria	3.8	2.7	3.2	2.7	3.2	2.6	2.7
Poland	14.8	13.6	13.2	11.4	9.0	7.5	7.1
Portugal	30.1	26.8	27.0	27.9	28.3	23.8	22.5
Romania	20.1	15.6	15.0	14.7	12.9	13.1	13.8
Slovenia	4.7	5.4	6.1	4.9	5.6	5.6	4.8
Slovakia	4.4	4.3	5.5	5.4	6.1	5.8	5.1
Finland	1.4	1.8	1.5	1.2	1.5	1.7	1.7
Sweden	2.1	1.9	1.7	0.9	1.1	1.2	2.6
United Kingdom	6.1	6.5	8.1	10.6	9.4	7.8	6.1

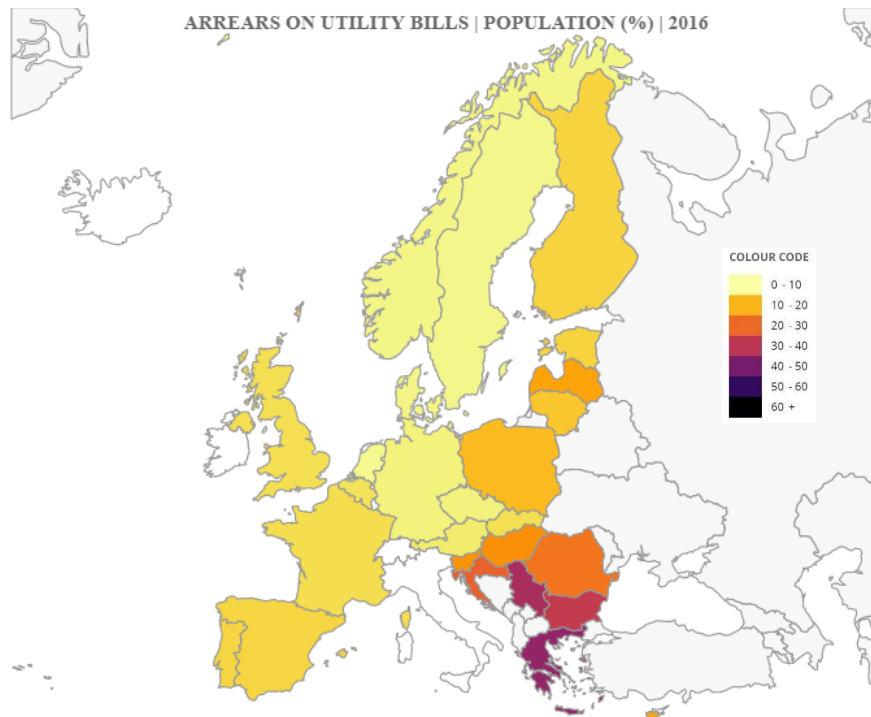
⁴ Based on an estimated EU28 population of 511.8 million inhabitants on 1 January 2017: http://ec.europa.eu/eurostat/statistics-explained/index.php/Population_and_population_change_statistics

2.2.2. Arrears on utility bills

The arrears on utility bills indicator asks: "In the last twelve months, has the household been in arrears, i.e. has been unable to pay on time due to financial difficulties for utility bills (heating, electricity, gas, water, etc.) for the main dwelling?" Whilst this indicator does include some utility expenses beyond energy⁵, it is nevertheless an important indicator as households unable to keep up to date with energy bill payments may experience disconnection of supply.

The spatial concentration of this indicator is provided in map form, within Figure 5. As before, the rates of utility bill arrears are particularly high within Eastern, Central and Southern Europe.

Figure 5 Map of 'Arrears on utility bills'. Data source: EU-SILC 2016



Within the last year, there has been a very slight decrease in the pan-EU rate of utility bill arrears, as seen in Table 4. Greece has the highest overall prevalence of utility bill arrears with 42.2% of households reporting arrears. It has seen rates more than double from 2010 to 2016, with a year on year increase, most likely reflecting broader economic issues. By comparison, Hungary and Romania have both seen significant improvements in recent years. Despite substantial improvements in the proportion of households reporting an inability to keep warm,

⁵ It excludes housing-related costs (such as mortgage payments) and telephone bills. It includes water, sewage and rubbish costs, where applicable.

Bulgaria has not seen significant changes to the rates of arrears, with around a third of households reporting having arrears.

In total 8.1% of households in the EU reported having arrears on their utility bills in 2016, which is equivalent to 41,455,800 people.

Table 4 Country means (%) for 'Arrears on utility bills'. Data source: EU-SILC 2010-2016

	2010	2011	2012	2013	2014	2015	2016
EU average	9.1	9.0	9.9	10.2	9.9	9.1	8.1
Belgium	5.8	6.0	6.1	5.0	5.8	5.1	5.0
Bulgaria	31.6	28.6	28.4	34.0	32.9	31.4	31.7
Czech Republic	4.2	4.3	4.1	4.0	4.7	3.0	3.0
Denmark	3.2	3.4	3.5	3.6	4.6	3.4	2.5
Germany	3.5	3.9	3.4	3.6	4.2	4.0	3.0
Estonia	11.0	11.8	10.9	10.4	10.0	7.9	7.9
Ireland	12.6	14.8	17.6	17.9	18.2	15.1	12.1
Greece	18.8	23.3	31.8	35.2	37.3	42.0	42.2
Spain	7.5	5.7	7.5	8.3	9.2	8.8	7.8
France	7.1	7.1	6.7	6.2	6.3	5.9	6.1
Croatia	28.0	27.5	28.9	30.4	29.1	28.7	25.3
Italy	11.2	12.0	11.7	11.9	12.2	12.6	8.9
Cyprus	16.3	16.9	18.4	21.9	20.5	20.1	15.4
Latvia	22.5	23.4	22.4	20.7	19.6	16.7	13.2
Lithuania	10.9	11.8	12.6	13.2	10.4	8.4	9.7
Luxembourg	2.1	2.2	2.2	3.1	3.2	2.4	4.0
Hungary	22.1	22.7	24.4	25.0	22.3	19.4	16.2
Malta	6.8	8.6	10.1	11.4	14.8	10.2	9.0
Netherlands	2.1	2.4	2.3	2.4	3.0	2.7	2.0
Austria	4.4	4.0	3.8	4.6	3.5	3.5	4.2
Poland	13.9	12.9	14.1	14.0	14.4	9.2	9.5
Portugal	6.4	6.7	6.3	8.2	8.5	7.8	7.3
Romania	26.5	27.3	29.7	29.7	21.5	17.4	18.0
Slovenia	18.0	17.3	19.3	19.7	20.3	17.5	15.9
Slovakia	9.6	6.4	5.8	5.9	6.1	5.7	5.7
Finland	6.9	7.8	7.9	8.4	7.9	7.5	7.7
Sweden	5.2	4.6	4.3	4.7	3.6	3.2	2.6
United Kingdom	5.6	5.0	8.9	8.7	7.2	7.0	5.7

2.2.3. High share of energy expenditure in income (2M)

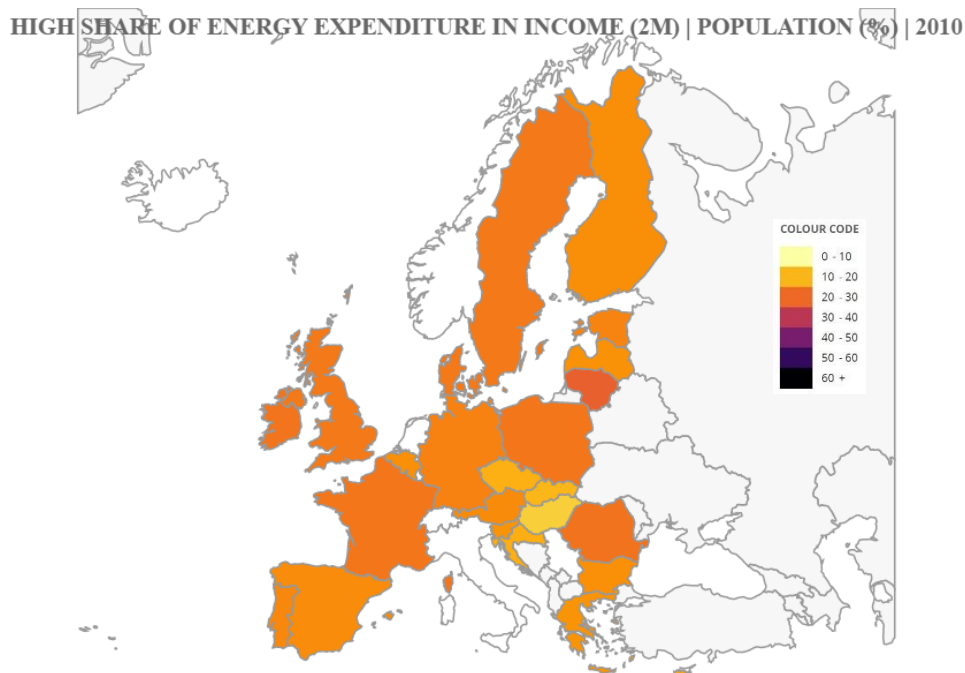
For expenditure-based assessments of energy poverty, the only available option is to use actual expenditure data from HBS. The HBS are conducted in all EU countries and contain data on household expenditure on goods and services, including household energy. However, at present the HBS datasets are not harmonised across the EU and there is significant variation in sampling methods, variable design and how often Member States conduct HBS, ranging from annually to every five years (Eurostat, 2014). At the time of writing, only the 2010 HBS

micro data was available from Eurostat; the 2015 data is not expected for release until 2019.

Using HBS data, a 2M indicator has been constructed⁶. As noted earlier, the 2M indicator presents the proportion of population whose share of energy expenditure in income is more than twice the national median share. An important methodological point to consider is that **where income distributions are more equal, variance in energy expenditure translates to higher 2M shares**. High variance in energy/income shares can occur due to structural differences in energy expenditure between household groups, as well as in situations where energy is often, but not exclusively, included in rent.

From the map in Figure 6, we see that this expenditure indicator has less spatial variance than the two preceding self-reported consensual indicators. In general, the rates of high energy expenditure are slightly higher within parts of Eastern, Northern and Western Europe.

Figure 6 Map of 2M indicator. Data source: HBS 2010



In Table 5 we see that the rates of high energy expenditure are greatest within Lithuania, with 21.4% of households spending more than twice the national median on energy. The EU average is much higher for this indicator compared to the preceding two indicators, with 16.3% of households facing disproportionately high expenditure.

⁶ Italy, Luxembourg and the Netherlands are missing data.

Table 5 Country means (%) for 2M indicator. Data source: HBS 2010

	2010
EU average	16.3
Austria	15.3
Belgium	14.7
Bulgaria	14.7
Cyprus	11.9
Czech Republic	10.7
Germany	16.6
Denmark	17.7
Estonia	16.2
Greece	14.2
Spain	15.2
Finland	14.8
France	18.1
Croatia	10.9
Hungary	6.9
Ireland	18.4
Lithuania	21.4
Latvia	14.5
Malta	17.3
Poland	18.1
Portugal	15.7
Romania	18.6
Sweden	17.7
Slovenia	14.1
Slovakia	10.0
United Kingdom	17.8

2.2.4. Hidden energy poverty (HEP)

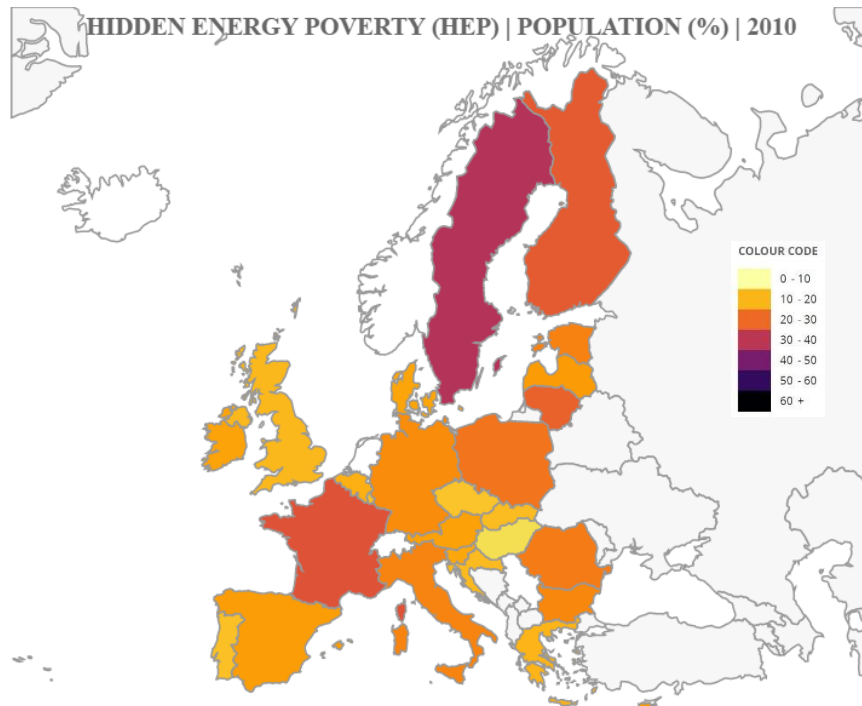
Based on HSB data, the HEP indicator⁷ presents the share of population whose absolute energy expenditure is below half the national median, in other words abnormally low. Whilst this could be due to high energy efficiency standards, it is also indicative of households dangerously under-consuming energy.

It should be noted that this indicator is influenced by the underlying distribution of absolute energy expenses in the lower half of the population. **If the median is relatively high and the distribution below very unequal, the HEP indicator is high.**

⁷ The Netherlands is missing data.

In Figure 7, the national means for the HEP indicator are displayed in map form. This indicator displays greater spatial variance than the 2M indicator, with countries within Northern and Western Europe displaying some of the highest rates.

Figure 7 Map of HEP indicator. Data source: HBS 2010



Taking a closer look at the country means in Table 6, we see that Sweden (31.0%), France (23.7%) and Finland (22.3%) have the highest rates of households with abnormally low expenditure. For countries like Sweden, which typically includes heating costs in rent, this may be a product of high variance in energy/income shares, as noted in section 2.2.3.

Overall, the EU average is 15.1%.

Table 6 Country means (%) for HEP indicator. Data source: HBS 2010

	2010
EU average	15.1
Austria	12.5
Belgium	10.5
Bulgaria	15.9
Cyprus	13.2
Czech Republic	8.4
Germany	15.1
Denmark	12.0
Estonia	16.5
Greece	10.3
Spain	13.0
Finland	22.3

France	23.7
Croatia	9.6
Hungary	5.0
Ireland	12.3
Italy	16.3
Lithuania	21.2
Luxembourg	8.5
Latvia	13.2
Malta	15.6
Poland	18.5
Portugal	8.8
Romania	17.5
Sweden	31.0
Slovenia	11.5
Slovakia	9.2
United Kingdom	9.8

2.2.5. Summertime issues

Summertime energy poverty and space cooling difficulties is a relatively under-explored aspect of energy poverty in Europe, despite many researchers arguing for a year round conceptualisation of the issue, which includes all energy services in the home. As highlighted by our photo exhibition work in Hungary (see page 16), some homes in Europe are reaching dangerously hot temperatures, which is likely to have health and well-being impacts.

On a conceptual level, the EPOV consortium sees an inability to keep adequately cool as a primary indicator of energy poverty. However, on a practical level, the currently available data fails to meet the quality criteria set out in section 2.1 in full, thus it has been classified as a secondary indicator. Within this section, statistics from the limited number of indicators are presented.

The EU-SILC survey has run a number of ad-hoc modules on special topics, including two on housing conditions. Within the housing condition module for 2007, there were two key indicators of summertime cooling:

- Dwelling comfortably cool during summer time (Yes/No)
- Dwelling equipped with air conditioning facilities (Yes/No)

However, collection of the air conditioning indicator was stopped after the 2007 module, whilst the comfortably cool indicator was repeated in 2012. However, from 2020 the comfortably cool indicator will no longer be collected, meaning that there will be no EU-level data relating to summertime energy poverty issue.

In Table 7, we find that in 2007 a third or more of households reported they were not comfortably cool during summer in eight Member States. The issue seems to particularly affect Eastern, Central and Southern European countries. Adequate coolth appears to be the dominant issue for many households, rather than warmth. Even within colder countries such as Ireland and the UK, 7.8% and 10.8% of

households respectively report inadequate cooling. The EU28 average for the proportion of dwellings not comfortably cool during summer time was 19.2% in 2012. Across most countries, the prevalence of uncomfortable indoor cooling reduced between 2007 to 2012. The exceptions are Finland and Greece, who both saw small increases in prevalence, and Malta whose rates more than doubled. Nearly half of all Bulgarian households reported that their homes were not comfortably cool in summer in 2012.

In terms of air conditioning facilities, as might be expected countries located in Southern Europe have the highest rates of air conditioning units, with 77.1% of homes in Cyprus featuring air conditioning, 55.7% in Malta, and 52.8% in Greece. Considering that a high proportion of Bulgarian households report that their home is uncomfortably hot during summer, only 8.4% of households have an air conditioning unit. Overall, the EU average is 10.8%.

Table 7 Country means (%) for air conditioning and comfortably cool indicators. Data source: EU-SILC ad-hoc modules 2007 and 2012

	Dwelling equipped with air conditioning facilities	Dwelling not comfortably cool during summer time	
	2007	2007	2012
EU average	10.8	25.8	19.2
Austria	1.5	18.1	15.0
Belgium	3.1	14.3	12.7
Bulgaria	8.4	-	49.5
Croatia	-	-	24.2
Cyprus	77.1	40.9	29.6
Czech Republic	0.9	39.1	21.8
Denmark	5.7	17.7	11.6
Estonia	1.9	23.3	23.3
Finland	19.2	20.3	25.2
France	5.2	29	18.9
Germany	1.8	22.7	13.6
Greece	52.8	29.4	34.0
Hungary	4.5	28.5	25.8
Ireland	0.4	7.8	4.0
Italy	25.1	33.4	26.3

Latvia	1.8	39.4	29.9
Lithuania	2.1	33.1	24.6
Luxembourg	5.2	17.9	10.2
Malta	55.7	16.0	35.4
Netherlands	6.4	18.2	17.7
Poland	0.9	41.2	25.3
Portugal	7.2	42.4	35.7
Romania	5.3	-	22.6
Slovakia	1.0	37.5	21.0
Slovenia	12.0	21	17.3
Spain	38.2	25.9	25.6
Sweden	15.2	11.1	7.6
United Kingdom	1.9	10.8	3.3

Key information:

- Energy poverty is not easily measured with a single indicator; each indicator captures a different aspect of the phenomenon;
- EPOV recommends using a suite of indicators in combination;
- 44.5 million people were unable to keep their home warm in 2016;
- 41.5 million people had arrears on their utility bills in 2016;
- A large proportion of households have disproportionately high – and low - energy expenditure burdens;
- 19.2% of households reported being uncomfortably hot during summer in 2012;
- As of 2020, there will be no EU-level data on summertime cooling.

2.3. Indicator Gaps

Attempts to quantify the prevalence of energy poverty are constrained by the limited availability of appropriate data and indicators. In particular, there is no dedicated survey of energy poverty anywhere in Europe, thus researchers are reliant on data collected for other purposes.

Some of the key aspects of energy poverty that are presently missing or under-explored within national surveys are:

- Electrical safety – the International Federation for the Safety of Electricity Users (Fisuel) has been campaigning on the link between energy poverty and electrical safety, and recently called for new indicators on this topic⁸
- Economic impacts of poor quality energy supply – as the photo on page 6 highlights, power outages can result in significant economic losses.
- Cooling and summertime issues – especially as Eurostat stopped collecting the air conditioning indicator after the 2007 ad-hoc module, and will soon stop collecting the dwelling comfortably cool in summer indicator.
- Health and wellbeing impacts, with greater detail on individual conditions.
- Data on other energy services in the home, such as ICT.
- Developing more regionally specific and targeted settlement-level data.
- Household needs and everyday practices are largely absent from statistical data (Thomson et al. 2017).

In addition to compiling authoritative statistics on energy poverty using existing sources of data, our consortium also seeks to push the state-of-the-art forward by actively engaging with processes to 1) improve the quality of existing data sources, and 2) expand data availability.

⁸ <https://www.energypoverty.eu/news/addressing-safety-and-energy-poverty-better-protect-vulnerable-consumers>



Vendrell, Tarragona, Spain • Rosa García.

In Spain, the economic crisis is contributing to and exacerbating energy poverty, particularly with increases to unemployment since 2008, rising energy prices, and the implementation of austerity measures.

Rosa remembers well the day her situation went from bad to worse. She and her children, who have been squatting in this house since 2016, returned to find that thieves had broken in and stolen the windows, the wall sockets, and the entire water and electricity installation. Now they run one extension cord to an outside electrical supply and feed other rooms with a network of power bars. This situation highlights the electrical safety concerns mentioned in section 2.5.

3. Measures to Tackle Energy Poverty

3.1. Existing European Legislation

Energy poverty has been officially present in the legal vocabulary of European institutions for more than a decade. The momentum behind the energy chapter in the Lisbon Treaty provided a driving force in the drafting of the Third Energy Package (TEP) and subsequent adoption in 2009, which brought energy poverty and vulnerability into mainstream EU energy policy, and established it as a European issue⁹. In particular, the TEP established the following legal requirement to protect vulnerable consumers in energy markets:

“Member States shall take appropriate measures to protect final customers, and shall, in particular, ensure that there are adequate safeguards to protect vulnerable customers. In this context, each Member State shall define the concept of vulnerable customers which may refer to energy poverty and, inter alia, to the prohibition of disconnection of electricity (gas) to such customers in critical times”

Electricity and Gas Directives (Directive 2009/72/EC; Directive 2009/73/EC)

Aside from the pioneering role of the EC in shaping the EU energy poverty agenda, activities in other institutions – the European Economic and Social Committee and the European Parliament – also played an important role.

More recently, the ‘Clean Energy for all Europeans’ package has allowed for a further integration of energy poverty amelioration efforts into policy stipulations and legal regulation. The Package is made up of eight legislative proposals targeting a variety of sectors: energy efficiency, energy performance of buildings, renewable energy, electricity market redesign, governance rules for the Energy Union, energy security and eco-design. Their departure point is a strong declarative commitment to energy efficiency, ‘fair treatment’ of consumers, and global leadership in energy transitions. Out of these, the Energy Performance in Buildings Directive has already been adopted and published at the time of writing, highlighting the ‘need to alleviate energy poverty ... in accordance with criteria defined by the Member States’. It stresses that Member States can outline ‘national actions that contribute to the alleviation of energy poverty in their

⁹ Bouzarovski S 2018 *Energy Poverty: (Dis)Assembling Europe’s Infrastructural Divide* London, Palgrave Macmillan

renovation strategies’, while having the right to ‘establish what they consider to be relevant actions’¹⁰. Moreover, a political agreement has been reached within EU inter-institutional negotiations on three additional pieces of legislation relevant to energy poverty: the Renewable Energy and Energy Efficiency Directives, as well as the Governance of the Energy Union. Of these, the Energy Efficiency Directive and Governance Regulation contain a number of specific energy-poverty related provisions, including the setting of ambitious and comprehensive energy efficiency targets, the formulation transparent, publicly available national rules on the allocation of the cost of heating, cooling and hot water consumption in multi-apartment and multi-purpose buildings, as well as the strengthening of rules on individual metering and the billing of thermal energy (Energy Efficiency Directive). Also foreseen is the integration of ‘Energy efficiency first’ principles when making decisions on new infrastructure investment, obligations on energy poverty reporting, as well as the setting of energy poverty reduction objectives in National Energy and Climate Plans (Governance Regulation).

3.2. Overview of Member State Approaches

3.2.1 Policy definitions

At the Member State level, a growing number of countries in the EU have official definitions of energy poverty (or fuel poverty) in place, as well as supporting national policy frameworks to address the issue. These are France, the Republic of Ireland, the United Kingdom, and more recently Cyprus and Slovakia, as outlined in Table 8. It should be noted that within the UK, energy poverty is a devolved policy matter and the definitions used by the devolved administrations of the UK have diverged since the official review of fuel poverty by Professor Hills (2012). Northern Ireland and Wales have opted to retain the original 2001 UK measure, whilst the Scottish Government last year ordered an official review of fuel poverty (Scottish Fuel Poverty Definition Review Panel, 2017) and later issued a new fuel poverty strategy for Scotland (Scottish Government, 2018).

10

<https://eur-lex.europa.eu/legal-content/EN/TXT/?toc=OJ%3AL%3A2018%3A156%3ATOC&uri=uriserv%3AOJ.L .2018.156.01.0075.01.ENG>

Table 8 Summary of official policy definitions across Europe (Adapted from Thomson *et al.* 2016, emphasis added by authors)

<p>UK (2001-2013):</p> <p>“A household is said to be in fuel poverty if it <u>needs</u> to spend more than 10% of its income on fuel to maintain an adequate level of warmth”¹</p> <p>¹Note that the modelling for this definition includes all energy services in the home.</p>	<p>France (2009-):</p> <p>A person is considered fuel poor “if he/she encounters particular difficulties in his/her accommodation in terms of energy supply related to the satisfaction of elementary needs, this being due to the inadequacy of financial resources or housing conditions”.</p>
<p>England (new LIHC 2013-):</p> <p>A household is said to be in fuel poverty if it:</p> <ol style="list-style-type: none"> 1. has <u>required</u> fuel costs that are above average (the national median level) 2. were they to spend that amount, they would be left with a residual income below the official poverty line (60% median income). 	<p>Scotland (revised 10% 2018-):</p> <p>“Households should be able to afford the heating and electricity needed for a decent quality of life. Once a household has paid for its housing, it is in fuel poverty if it needs more than 10% of its remaining income to pay for its energy needs, and if this then leaves the household in poverty².”</p> <p>²Based on the UK Minimum Income Standard (MIS) poverty approach.</p>
<p>Cyprus (2012-):</p> <p>“The situation of customers who may be in a difficult position because of their low income as indicated by their tax statements in conjunction with their professional status, marital status and specific health conditions and therefore, are unable to respond to the costs for the reasonable needs of the supply of electricity, as these costs represent a significant proportion of their disposable income.”¹¹</p>	<p>Slovakia (2015-):</p> <p>“Energy poverty under the law No. 250/2012 Coll. Of Laws is a status when average monthly expenditures of household on consumption of electricity, gas, heating and hot water production represent a substantial share of average monthly income of the household” (Strakova, 2014: 3).</p>
<p>Ireland (2016-):</p> <p>“...a household that spends more than 10% of their income on energy is considered to be in energy poverty”</p>	

¹¹ MCIT, Law for the Regulation of Electricity Market of 2003 to 2012, 2013. http://www.cylaw.org/KDP/data/2013_1_218.pdf.

One contributing factor for the limited number of definitions of energy poverty/fuel poverty may be that Member States are not yet legally required to produce such a definition. By comparison, as noted in section 3.1, Member States have a legal obligation, at the minimum, to define the concept of vulnerable customers (with the context of retail gas and electricity markets), in order to comply with requirements stemming from the Third Energy Package. Pye et al. (2015) conducted a review of efforts across different Member States to define and protect vulnerable consumers, culminating in a 4-part classification of vulnerable consumer definitions. The four categories are:

- **Energy affordability:** whereby households with high energy expenditure and/or difficulties affording energy costs are classed as vulnerable;
- **Receipt of social welfare:** which encompasses households receiving qualifying social assistance, e.g. unemployment-related cash transfers;
- **Disability/health:** where health characteristics define vulnerability;
- **Range of socioeconomic groups:** in which households are described as vulnerable based on income, age and/or health characteristics.

The distribution of Member States across the four categories is given below in Table 9, and the full list of vulnerable consumer definitions for each country can be found in Section 6.3.

Table 9 Categorisation of Member State definitions of vulnerable customers (Pye et al., 2015: 27)

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

3.2.2 Current practical measures

Within the Insight_E project on *Energy poverty and vulnerable consumers in the energy sector across the EU* by Pye et al. (2015), two Member State approaches were distinguished: social policy-led and energy-policy led. The social policy-led approach primarily focuses on tackling energy poverty through social security provision, while the energy policy-led approach focuses more explicitly on energy poverty through specific measures. This distinction is valuable to understand the basic policy stance of national governments to energy poverty.

To understand the Member State approaches in more detail, we suggest assessing **the extent to which policies are targeted to specific vulnerable groups**. The [Policies & Measures](#) section on the EPOV website allows one to filter on different targeting dimensions, such as socioeconomic group, housing situation,

energy carrier and geographic scope. Measures that are more targeted to a specific vulnerable group, such as pensioners, social housing or heating oil users, will be generally more effective at tackling energy poverty than non-targeted measures.

In that sense, social-policy led approaches can have a certain degree of targeting associated with them. In particular, some countries in Northern Europe and Western Europe have developed a well-functioning system of [social housing](#) that provides low-income households with housing of decent energy efficiency, which is an important factor contributing to the relatively low levels of energy poverty in this region. The housing on the private market might also be of relatively high quality through the implementation of strict building standards. In addition, these countries often provide [social support](#) to low income households to cover for their living expenses, including additional financial support for certain vulnerable households such as pensioners.

Many countries in Eastern Europe also provide [social support](#) to low income households to tackle energy poverty, but the housing stock might not be of sufficient quality to avoid energy poverty. These countries therefore implement large programs to renovate and improve the existing building stock, in particular the large [apartment buildings](#) from the communist era. These renovation programs are often partly funded through European support, such as structural funds.

In comparison to social support, more specifically targeted measures for energy poverty are [energy bill support](#) and [social tariffs](#), which provide direct financial support to households to pay their energy bills. These measures are found all across Europe in both social policy-led and energy policy-led countries. Similarly, [disconnection protection](#) measures are also found across Europe, providing protection against disconnection for households in colder months during wintertime. Both the direct financial support measures as well as the disconnection measure are always targeted to specific vulnerable groups, such as low income households, pensioners or disabled. However, they do not provide a long-term solution for energy poverty through improving the energy situation of households (e.g. better energy efficiency).

Targeted measures that improve the energy situation of households are more scarce in Europe, and are mainly found in certain countries in Western and Southern Europe. These measures mainly focus on improving the [building insulation](#) of housing or replacing [heating systems](#). Targeted [energy audits](#) are also mostly implemented in these Western and Southern European countries. Energy audits are visits to vulnerable households to provide direct advice on how to improve their specific situation. These targeted measures are a very powerful way to address energy poverty in the long term. To be sure, there are similar policies in other parts of Europe, but these are not targeted to specific vulnerable groups.

Finally, there are relatively few targeted policies in Europe that facilitate the installing of [renewable energy](#) (such as solar panels) or replacing large [household appliances](#) such as refrigerators. Within the energy transition, allowing energy

poor households to improve on these aspects of their energy situation will likely become increasingly important, as being able to produce energy is an important method to empower energy poor households.

3.3. Recommendations

Within the context of the 'Clean Energy for all Europeans' package, and in particular the recently adopted Energy Performance in Buildings Directive, EPOV has developed two specialist resources for policymakers to assist with national and local action plans to alleviate energy poverty:

- **Guidance for Policymakers**¹² – a dedicated webpage that gives a short overview of essential points for policymakers to consider for new policies;
- **Designing effective energy poverty policies in municipalities**¹³ – this Guidance document provides information about the design of practical energy poverty policies in municipalities.

Based on these guidance resources, and the outcomes of specialist events held in recent years, our key policy recommendations are listed in the box below.

¹² <https://www.energypoverty.eu/guidance-policymakers>

¹³ <https://www.energypoverty.eu/publication/eu-energy-poverty-observatory-guidance-designing-effective-energy-poverty-policies>

Key policy recommendations

Definitions

- The definition of energy poor and/or vulnerable households is essential for targeting policies. These should be tailored to local contexts, in terms of climate, housing quality, and the structure of energy costs;
- Most national-level definitions will translate poorly to targeting criteria 'on the doorstep', thus complementary frameworks should be used;
- Many energy poor households will not self-identify themselves for assistance programmes. Key stakeholders, including EPOV, should be involved to assist with designing non-stigmatising policy frameworks.

Energy efficiency

- Energy inefficiency is a primary driver of energy poverty. Implementing energy efficiency schemes can reduce energy poverty rates, as well as bring about a range of other energy and non-energy benefits;
- There is a need for closer integration with cohesion and regional development instruments, and the integration of energy policy in urban and regional planning. European Structural and Investment Funds can play a pivotal role in alleviating energy poverty;
- It is imperative that any barriers to receiving energy efficiency investment are identified and removed to ensure the most vulnerable households can benefit from interventions. For example, requiring co-contributions or a financial loan will exclude many households.

Other mechanisms

- Measures that are more targeted to a specific vulnerable group, such as social housing or heating oil users, will be generally more effective at tackling energy poverty than non-targeted measures;
- A Europe-wide ban on winter disconnections is an important goal, alongside better mechanisms for collective switching;
- Both social policy and energy policy mechanisms need to be used, especially as energy poverty does not overlap fully with income poverty, and has a number of infrastructural causes.

4. Conclusions

As the first of a series of pan-EU reports on energy poverty, a key purpose of this document has been to introduce readers to the EU Energy Poverty Observatory (EPOV), a new initiative from the European Commission to help Member States in their efforts to combat energy poverty. EPOV exists to improve the measuring, monitoring and sharing of knowledge and best practice on energy poverty. It collects and publishes Europe-wide energy poverty data while serving as the focal point of growing networks of policy-makers, research scientists, advocacy groups and community activists interested in the issue. It aims to improve the state of the art on energy poverty detection, measurement and reporting by creating a public forum for the exchange of knowledge on the issue. The EPOV web portal¹⁴ provides the most comprehensive range of energy poverty resources available anywhere worldwide, including:

- Indicator dashboard
 - 28 primary and secondary indicators of energy poverty.
- Publications database
 - 510+ scientific articles from 1983-present.
- Catalogue of policies and measures
 - 290 examples of practical policies and schemes.
- Training resources
 - ~50 practical training resources, including videos and toolkits.
- Members' directory
 - 450 members worldwide.
- List of relevant organisations
 - 90 organisations active in research, policy, and practice.
- Guidance for policymakers
 - Information on essential points to consider for new policies.
- News & Events
 - Calendar of local and national events
 - 'Perspective' articles and news pieces.
- Discussion forums
 - A place to discuss experiences and new ideas.

This report has also explored the prevalence of energy poverty across the EU using a range of available statistical indicators, finding:

- Energy poverty is not easily measured with a single indicator; each indicator captures a different aspect of the phenomenon;
- EPOV recommends using a suite of indicators in combination;

¹⁴ <https://www.energypoverty.eu/>

- 44.5 million people were unable to keep their home warm in 2016;
- 41.5 million people had arrears on their utility bills in 2016;
- A large proportion of households have disproportionately high – and low (i.e. they may be under-consuming) - energy expenditure burdens;
- 19.2% of households reported being too hot during summer in 2012.

From these findings, it is evident that energy poverty is a key societal challenge that should be urgently addressed by Member States. Living in inadequately heated or cooled homes is known to have detrimental impacts on respiratory, circulatory and cardiovascular systems, as well as mental health and well-being. Energy poverty has also been shown to exert wider economic and political impacts, beyond the private domain of the home.

In terms of gaps in data and indicators, some of the key aspects of energy poverty that have been identified as missing or under-explored are:

- Electrical safety – the International Federation for the Safety of Electricity Users (Fisuel) recently called for new indicators on this topic¹⁵.
- Economic impacts of poor quality energy supply – unreliable energy supplies can result in significant economic losses.
- Health and wellbeing impacts.
- Cooling and summertime issues – especially as Eurostat stopped collecting the air conditioning indicator after the 2007 ad-hoc module, and will soon stop collecting the 'dwelling comfortably cool in summer' indicator.
- Data on other energy services in the home, such as ICT.
- Developing more regionally specific and targeted settlement-level data.
- Household needs and everyday practices are largely absent.

The report also examined measures to tackle energy poverty, both in terms of EU legislative requirements and national definitions in policy of energy poverty and vulnerable consumers, as well as practical schemes to assist households. Overall, we found that a lot of work is already underway at the Member State level; however, significantly more needs to be done to tackle energy poverty. In this regard, it is expected that the EPOV will become an important decision-support tool for the new European Union-wide energy policy, regulation and legislation that will be developed in the near future.

¹⁵ <https://www.energypoverty.eu/news/addressing-safety-and-energy-poverty-better-protect-vulnerable-consumers>

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6. Appendices

6.1. Project Consortium

Table 10 Members of the Managing Board and Steering Committee

Body	Lead	Members
Managing Board	Harriet Thomson (University of Manchester, UK)	<ul style="list-style-type: none"> • Harriet Thomson (UoM) • Sam Nierop (Ecofys) • Adrian Kentsch (Intrasoft Intl.) • Johannes Thema (Wuppertal Inst.) • Helen Stockton (NEA) • Marco Giuli (EPC)
Steering Committee	Stefan Bouzarovski (University of Manchester, UK)	<ul style="list-style-type: none"> • Stefan Bouzarovski (UoM) • Sil Boeve (Ecofys) • Yiannos Contrafouris (Intrasoft Intl.) • Florin Vondung (Wuppertal Inst.) • Peter Smith (NEA) • Claire Dhéret (EPC)

6.2. Members of the Advisory Board

Table 11 Full list of AB members and country

- François Bafoil (FR)
- Anna Zsófia Bajomi (IT)
- Keith Baker (UK)
- Katerina Bezgachina (SK)
- Brenda Boardman (UK)
- Jean-Sébastien Broc (FR)
- Mauro Brolis (IT)
- Karl-Michael Brunner (AT)
- Raúl Castaño De la Rosa (ES)
- Evangelia Chatzikonstantinou (GR)
- Paul Deane (IE)
- Ute Dubois (FR)
- Søren Dyck-Madsen (DK)
- Sanja Filipovic (RS)
- Jan Frankowski (PL)
- Marta Garcia (ES)
- João Pedro Gouveia (PT)
- Theresa Griffin MEP (UK)
- Katrin Großmann (DE)
- Rachel Guyet (FR)
- Peter Heindl (DE)
- Adrian Joyce (BE)
- John Kolm-Murray (UK)
- Ana Colovic Lesoska (MK)
- Grzegorz Libor (PL)
- Maciej Lis (PL)
- Sylvia Mandl (AT)
- Sandrine Meyer (BE)

- Lucie Middlesmiss (UK)
- Marie Moisan (FR)
- Virgil Musatescu (RO)
- Tamás Meszerics MEP (HU)
- Matthias Naumann (DE)
- Besim Nebiu (MK)
- Eimantas Neniškis (LT)
- Ana Raquel Nunes (UK)
- Fülöp Orsolya (HU)
- Kimberley O'Sullivan (NZ)
- Massimo Palombo (IT)
- Teodora Peneva (BG)
- Gloria Pignatta (IT)
- Brian Restall (MT)
- Slavica Robic (HR) – Convenor of Advisory Board
- José Romero (ES)
- Iwona Sagan (PL)
- Katarzyna Sałach (PL)
- Cristina Ramos Santamaria (ES)
- Mattheos Santamouris (GR)
- Ali Saysel (TR)
- Luisa Schmidt (PT)
- Andreas Schneller (DE)
- Despina Serghides (CY)
- Sofia Gago da Câmara Simões (PT)
- Radostina Slavkova (BG)
- Carolyn Snell (UK)
- Aleksandra Stępniaak (PL)
- Dagmar Straková (SK)
- Aleksander Szpor (PL)

- Tomislav Tkalec (SI)
- Angela Tod (UK)
- Ethemcan Turhan (TR)
- Diana Ürge-Vorsatz (HU)
- Paola Valbonesi (IT)
- Marina Varvesi (IT)
- Fereniki Vatavali (GR)
- Lidija Zivcic (SI)

6.3. Member State definitions of vulnerable customers

Table 12 National vulnerable customer definitions (Adapted from Pye et al. (2015:28-31) with updates from the Advisory Board)

Member State	Definition of vulnerable customer
Austria	The concept of vulnerable customer is implemented through a series of protection mechanisms for clearly identified groups of people/households according to social security and energy laws.
Belgium	<p><u>Federal:</u> The definition of the concept of vulnerable customers is implicitly recognized by the energy law and/or social security system of the country ("protected clients"); The energy law/legal framework explicitly states what groups of customers are regarded as "vulnerable" based on personal properties of customers (e.g. disability). These vulnerable customers benefit (automatically since 2011) of the social energy tariffs for gas and electricity. The Social Heating Fund (mix of petroleum industry financing and public financing) recognise also different categories of vulnerable customers for which the Fund may intervene to help them paying their energy bill (fuel oil or other petroleum products). The Energy Fund helps households having energy debts in gas or electricity. These two financial supports are granted by public centres for social action.</p> <p><u>Flanders:</u> Cf. national definition of "protected clients". In Flanders, vulnerable customers are those customers that are entitled to get the federal social tariff. National legislation defines the preconditions to get the social tariff. Households having energy debts are constrained by a budget meter. Protected clients benefit from several facilities / additional protections.</p> <p><u>Brussels:</u> The Brussels Region applies the definition of vulnerable customer such as defined in the Directive. The categories recognised by the national Government as vulnerable ones are also recognised in the Brussels Region. The Brussels Region recognises two extra categories of customers as vulnerable: 1) which are recognised as vulnerable customers by local public aid centres and 2) ones that meet certain criteria defined in the regional legislation in terms of revenues and number of persons composing the household, in terms of being in a debt mediation process or benefiting from specific social interventions and whom are on that basis recognised as vulnerable customers by the Brussels regional regulator or the Brussels distribution network operator. For the two additional categories recognised in the Brussels Region the 'statute' of vulnerable customers is linked to a limitation of power supply and is limited in time and ceases once the customer has paid off his debt to his supplier. The two</p>

	<p>additional categories benefit also from the social energy tariffs (but financed by a regional contribution on electricity and gas while these tariffs for federal protected clients are financed via a federal contribution on gas and electricity). Households with debt on their electricity bill are constrained with a power limiter.</p> <p><u>Wallonia:</u> adopted the same approach as the Brussels Capital Region with the recognition of federal “protected clients” and the adjunction of four additional categories of households (benefiting from an energy guidance scheme with the public centre for social action, being in debt mediation or in a collective debt settlement, benefiting from a social intervention for health care costs). These protected clients benefit from the social tariffs for gas and electricity (social tariffs for additional categories are financed regionally). Households having energy debts are constrained in their gas or electricity consumption by a budget meter. Both regional and federal protected clients benefit from a power limiter with a minimum electricity supply.</p>
Bulgaria	<p>Social Assistance Law through Ordinance No. RD-07-5 as of 16 May 2008 for provision of targeted benefits for heating is given once a year to Persons or families whose average monthly income in the last six months is lower or equal to differentiated minimum income; these citizens are eligible for heating benefits according to Art. 10 and 11. From July 2012, vulnerable customers are defined in the Energy Act.</p>
Croatia	<p>In its valid and effective wording, the Energy Act does not define ‘vulnerable customer’; for consumers who can be regarded as ‘socially disadvantaged’, including recipients of disability support, certain measures for their protection and support for their rights are provided for at the level of generally applicable legislation in the domain of social security law.</p>
Cyprus	<p>Revisions of the law have stated that vulnerable consumers as they are related to energy poverty, are determined based on the types of financial aids they receive through national welfare services. The Ministry of Energy, Commerce, Industry and Tourism (MECIT) issued a ministerial order in 2015 (Κ.Δ.Π 289/2015), in which energy poverty is mentioned and vulnerable consumers are those receiving financial stipends related to¹⁶:</p> <ul style="list-style-type: none"> • Minimum guaranteed income (Welfare Providence Management Services) • Public aid (Social Welfare Services)

¹⁶ MECIT, Ministerial Order for Vulnerable Electricity Consumers 289/2015, (n.d.). https://www.cera.org.cy/Templates/00001/data/nomothesia/ethniki/hlektrismos/Diatagmata/kdp2015_289.pdf.

	<ul style="list-style-type: none"> • Allowance for heavy bodily disability (Department for Social Inclusion of Persons with Disabilities) • Allowance for retired individuals with very low incomes (Welfare Providence Management Services) • Allowance for paraplegic individuals (Department for Social Inclusion of Persons with Disabilities) • Allowance for quadriplegic individuals (Department for Social Inclusion of Persons with Disabilities) • Allowance for blind individuals (Department for Social Inclusion of Persons with Disabilities) • Large families (5-person or higher) receiving child support (Welfare Providence Management Services). <p>In addition, the ministerial order also states a set of measures aiming to tackle energy poverty and support vulnerable consumers. These are:</p> <ul style="list-style-type: none"> • Special electricity tariff • Additional benefits to promote schemes for net metering • Additional benefits to promote schemes for residential energy efficiency improvements and RES • Disconnection protection - only available to vulnerable consumers with serious medical conditions, subject to examination by a relevant medical board.
Czech Republic	There is a legal term "protected customer" such as hospitals and ill people dependent on life-support equipment.
Denmark	There are no specific provisions regarding vulnerable consumers in energy law; instead this issue is dealt with in social legislation. However the principal of universality exists where every citizen has a right to social assistance when affected by a specific event. Various schemes in existence for short and longer-term support to unemployed, social security for the non-working
Estonia	A household customer to whom subsistence benefit has been awarded pursuant to section 22(1) of the Social Welfare Act: A person living alone or a family whose monthly net income, after the deduction of the fixed expenses connected with permanent dwelling calculated under the conditions provided for in subsections 22 (5) and (6) of this Act, is below the subsistence level has the right to receive a subsistence benefit. Subsistence level is established based on minimum expenses made on consumption of foodstuffs, clothing, footwear and other goods and services which satisfy the primary needs.
Finland	In the energy market act there are defined in connection to the disconnection of the electricity. Also in the constitution there is a concept of basic rights and social security legislation defines the target groups.
France	Special tariffs are reserved for households with an income below or equal to a threshold of entitlement to supplementary universal

	<p>health cover. These tariffs are available for both electricity and natural gas consumers. From the end of 2013, these social tariffs were further extended to cover all households with an annual reference fiscal income per unit (revenu fiscal de reference) lower than EUR 2,175. The number of households benefitting from the social tariff is expected to increase from 1.9 million to 4.2 million, equivalent to 8 million people</p>
Germany	<p>Vulnerable customers eligible for support are in line with the social security system (CEER 2013). Additional support is provided in terms of consumer protection in line with the Third Energy Package.</p>
Greece	<p>Groups of customers defined under the Energy law:</p> <ul style="list-style-type: none"> (a) The financially weak customers suffering from energy poverty. (b) Customers who themselves or their spouses or persons who live together, rely heavily on continuous and uninterrupted power supply, due to mechanical support. (c) Elderly who are over seventy years old, provided they do not live together with another person who is younger than the above age limit. (d) Customers with serious health problems, especially those with severe physical or mental disability with intellectual disabilities, severe audiovisual or locomotor problems, or with multiple disabilities or chronic illness who can not manage their contractual relationship with their Supplier. (e) Customers in remote areas, especially those living at the Non Interconnected Islands.
Hungary	<p>Vulnerable customers' shall mean those household customers who require special attention due to their social disposition defined in legal regulation, or some other particular reason, in terms of supplying them with electricity.</p>
Ireland	<p>A vulnerable customer is defined in legislation as a household customer who is:</p> <ul style="list-style-type: none"> a) critically dependent on electrically powered equipment, which shall include but is not limited to life protecting devices, assistive technologies to support independent living and medical equipment, or b) particularly vulnerable to disconnection during winter months for reasons of advanced age or physical, sensory, intellectual or mental health.
Italy	<p>Several measures aim to protect customers (vulnerable household customers, utilities, activities relating to 'public service', including hospitals, nursing homes and rest, prisons, schools and other public and private facilities that perform an activity recognized of public service as well as household customers that require electricity powered life-support equipment with severe health problems). Italian decrees establish the "social</p>

	bonus” (a social support program) defined by the Government for the benefit of electricity customers whose annual income does not exceed a certain threshold (set up by the law and certified by equivalent economic situation indicator, that takes into account income, assets, the characteristics of a family by number and type). The “social bonus” is a discount (annual amount fixed the same in the free market or in the enhanced protection regime) of the electricity bill each year, dependent upon the use, number of people in the family, and climate zone.
Latvia	There is no clear definition of vulnerable consumers yet, but plans exist to introduce several measures to inform and support vulnerable consumers.
Lithuania	Description of procedure for the application of additional guarantees for socially vulnerable electricity consumers sets the definition of vulnerable electricity consumers and additional guarantees related to electricity supply for these consumers. Vulnerable consumers include domestic electricity consumers, who receive or live together with other persons who receive social financial support by the Law on Cash Social Assistance for Low-Income Families (Single Residents).
Luxembourg	All customers are de facto considered as potentially vulnerable in Luxembourg.
Malta	Vulnerable consumers are supported through social policy. Recipients of social security are eligible for support.
Netherlands	Legislation states that a household consumer for whom ending the transport or the supply of electricity or gas would result in very serious health risks for the domestic consumer or a member of the same household of the household customer is regarded as vulnerable, and thus disconnection is not permitted, unless a case of fraud has been proved.
Poland	The energy law states that vulnerable customer of electricity is a person who is eligible to housing allowance (income support) because the level of its income is lower than a certain degree. That means that the concept of vulnerable customers is based on poverty.
Portugal	The concept is defined in the energy sector law and corresponds to that of economically vulnerable customers which correspond to people receiving certain social welfare subsidies (social security system) with some contract limitations (e.g. contracted power). These customers have access to a social tariff.
Romania	Vulnerable customers are defined as household consumers with low income within the limits laid down in the Ordinance 27/2013.
Slovakia	The concept for the protection of consumers fulfilling conditions of the energy poverty was in preparation in 2013. Act on Energy Industry defines vulnerable household electricity customer as a strongly disabled person and whose vital functions are depending upon the offtake of electricity and uses electricity for heating. The

	DSO keeps records of vulnerable customers and can disrupt electricity distribution only after previous direct communication of these electricity customers with the DSO.
Slovenia	Social support is provided to households through a minimum income to households/individuals without an income or an income below the official level.
Spain	The concept of vulnerable costumers has only been defined so far for electricity customers. Vulnerable customers should fulfil at least one of the following criteria: a large family or a family where all members are unemployed; be low voltage consumers (less than 1 kV) with contracted demand lower than or equal to 3 kW; or a pensioner older than 60 years with a minimum level pension. Vulnerable customers' electricity tariffs are reduced by means of a "social bonus", which sets their tariffs at the July 2009 level. As of December 2012, 2,544,170 customers were defined as vulnerable.
Sweden	Vulnerable customers are defined as persons who permanently lack ability to pay for the electricity or natural gas that is transferred or delivered to them for non-Commercial purposes.
United Kingdom	Ofgem have defined vulnerability as when a consumer's personal circumstances and characteristics combine with aspects of the market to create situations where he or she is: <ul style="list-style-type: none"> - significantly less able than a typical consumer to protect or represent his or her interests in the energy market; and/or - significantly more likely than a typical consumer to suffer detriment, or that detriment is likely to be more substantial.