Energy Poverty in Europe and the EU Energy Poverty Advisory Hub Role

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{ } CENSE center for environmental and sustainability research

NOVA SCHOOL OF SCIENCE & TECHNOLOGY

EU Energy Poverty Advisory Hub

UN’s Sustainable Development Goals

Energy Poverty

Addressing energy poverty is like playing chess.

We need to **consider all pieces, employ multiple strategies and see the whole board.**

But unlike chess we have to play this game collaborative to win.

Energy Poverty in Europe

Energy Poverty in Europe

Early 1980's – J. Bradshaw and S. Hutton academic publications

1991 - First proposal for quantifying energy poverty was introduced by B. Boardman (UK-focused)

Early 2000's: energy poverty-relevant challenges acknowledged in European Union's debates.

2009: first legal recognition in the Third Energy Package also highlights the protection of vulnerable customers.

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Energy Poverty in Europe

2010-2020: increased attention with multiple studies and reports funded by the European Commission and the European Parliament, and various European projects investigating energy poverty and measures to tackle it (including the EU Energy Poverty Observatory and the EU COST Action ENGAGER).

2015: Covenant Signatories have signed up to take actions on "Access to energy" which include Energy poverty.

2018-2019: tackling energy poverty becomes a policy priority at the EU level with the 'Clean Energy for all Europeans' Package, requiring Member States to assess the extent of energy poverty in their National Energy and Climate Plans.

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Energy Poverty in Europe

2020: Recommendation on energy poverty (EU) 2020/1563 published as part of the European Commission's communication on the Renovation Wave, with guidelines for Member States to assess energy poverty and take actions.

2022: 'Fit for 55 package' - expected to create a new Social Climate Fund which "will provide dedicated funding to Member States to support European citizens most affected or at risk of energy or mobility poverty".

2021-2024: EU Energy Poverty Advisory HUB.

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Energy Poverty Challenges

Energy Poverty - A socio-technical challenge

Heating

Vulnerable consumers

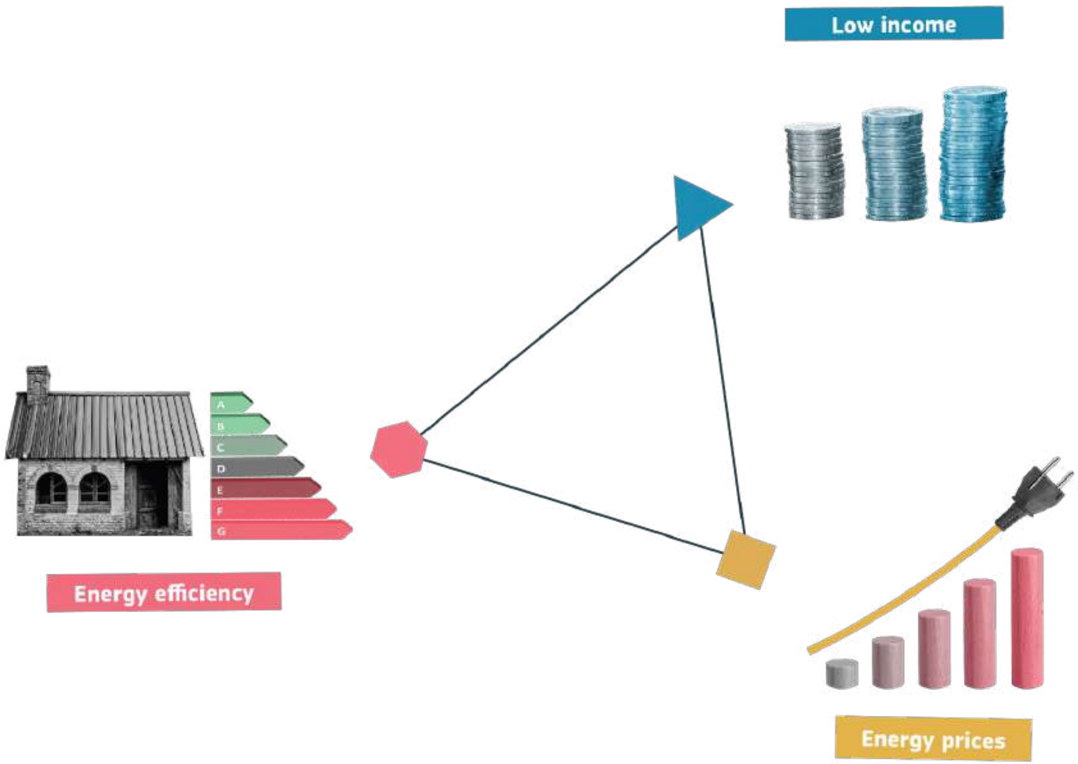
Cooling

Wellbeing

Social inclusion

European Commission

Energy Poverty Drivers



Energy Poverty Challenges

DEFINITION Define **Energy Poverty**

MEASURING AND MONITORING

Quantify the levels of energy poverty and identify households; indicators selection that **enable regular monitoring** and evaluate progress.

TARGETS Create targets for energy poverty reduction through **energy efficiency, deep energy renovation; energy prices and markets; payments support and expenses reduction; Information, Knowledge and Education**

POLICIES AND MEASURES **Implementation of targeted measures** - District scale, building and household level. **Use local scale approaches** and referencing by local agents and governments. **Ex-ante analysis.**

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Energy Poverty Definition

- A definition should allow full recognition of the problem (winter, summer, high expenditures, low energy consumption).

- Acknowledge not only accessibility and inability but also difficulty to have appropriate energy services.

- A definition should be comprehensive enough to frame a wide set of future policies and measures.

- Integrating key drivers of energy poverty –
  - Low Incomes
  - High energy prices (through a purchasing power parity (PPP) lens)
  - Inefficient housing stock and equipment.

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Energy Poverty in Europe - Definition

A widely accepted description of **energy poverty** is when households are unable to access essential energy services at affordable cost and is caused by a combination of low incomes, high energy prices, and inefficient buildings.

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Energy Poverty – Multiple Indicators

Climate, Winter and Summer Vulnerabilities – problems of heating and cooling, extreme weather events

Energy Consumption and Costs - Arrears on Utility Bills, Energy Prices and Energy Expenditures, hidden energy poverty,

Housing and Equipment Energy Efficiency - Buildings energy performance, structural problems in housing - leaking roofs, damp walls, floors or foundation, or rot in window frames of floor; type of fuels and equipment

Socio-Economic perspective and vulnerable groups (elderly, tenants, migrants, unemployed, children)

Health impacts

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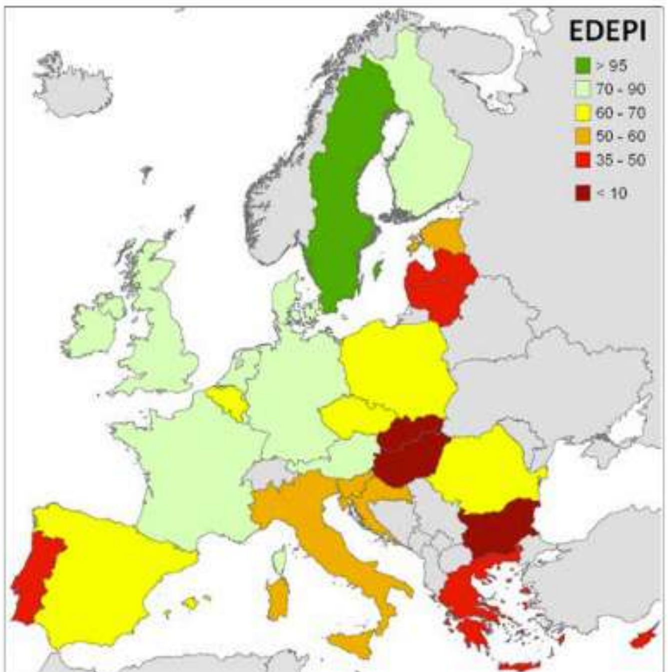
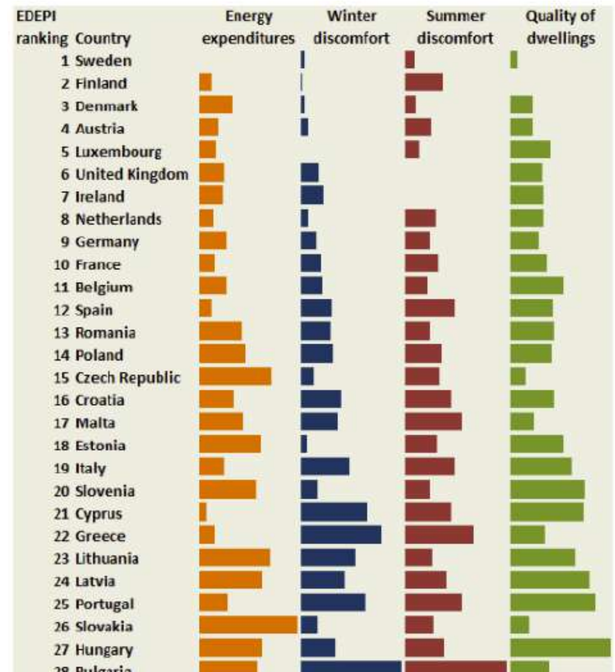
Energy Poverty in Europe – Measuring

- There is a clear divide between North/Western countries and Southern/Eastern-Southern countries in the progress made in alleviating domestic energy poverty.





Source: OpenExp (2019)

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Energy Poverty in Europe - Measuring

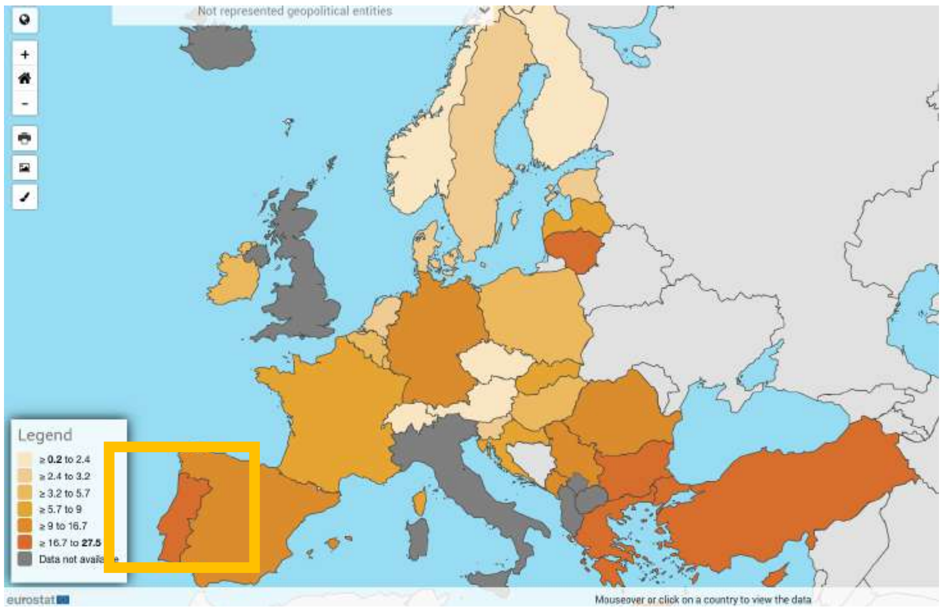
- Commonly, proxy indicators have been used to estimate energy poverty, such as the ones included in the EU Statistics on Income and Living Conditions (EU - SILC) or Household Budget Survey.

- Surveys behind those indicators were not designed to measure energy poverty and as such provide imperfect estimates of the problem and are insufficient to identify the source of the problem.

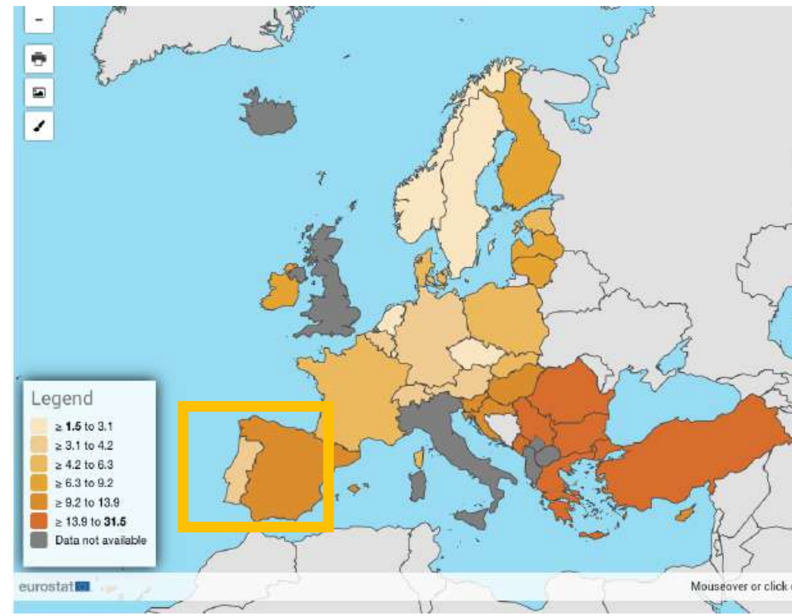
- All indicators have their advantages and disadvantages and possibly surprising results for certain EU member states in comparison to others need to be seen in their specific contexts.

Energy Poverty in Europe - Measuring

Inability to keep the house adequately warm



Arrears on Utility Bills



Each indicator captures a different aspect of the phenomenon. Recognize shortcomings and relevant data gaps both at national but mostly at local scale.

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Looking Ahead - Targets, Policies and and Measures

- Policies and plans shall recognize under-consumption problems related to hidden energy poverty.
- Recognize the renovation of the building's structure / passive measures as a priority, but not thinking solely about individual households but addressing full buildings renovations.
- Targets should consider ex-ante analysis of expected impact.
- Selection of indicators consistent with being used for targeting and monitoring. Need to be regularly updated and sufficiently sensitive to measures, to avoid complexity.

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Energy Poverty Advisory Hub

Energy Poverty Advisory HUB (EPAH)

[2021-2024]

www.energypoverty.eu/

TASK 1
IDENTIFICATION OF LOCAL, MUNICIPAL AND/OR REGIONAL LEVEL BEST PRACTICES TO TACKLE ENERGY POVERTY

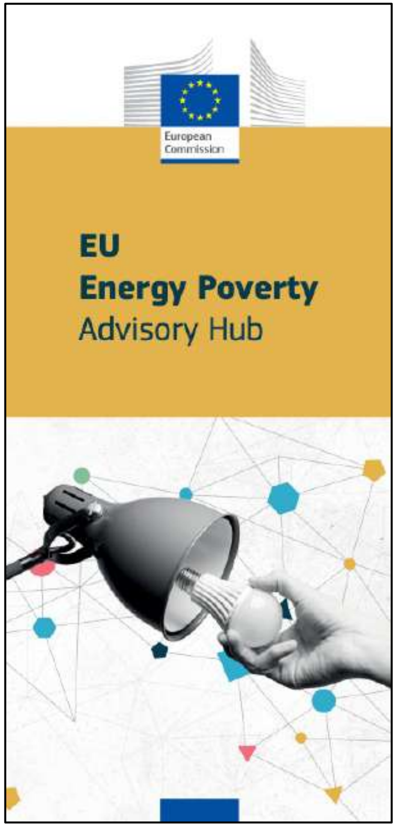
TASK 2
PROVISION OF TECHNICAL ASSISTANCE

TASK 3
PROJECT PROMOTION, DISSEMINATION AND IMPACT MAXIMISATION

TASK 4
ENERGY POVERTY OBSERVATORY WEBSITE

PORTUGAL
NOVA
SPAIN
ecoserveis
IRELAND
3 Counties Energy Agency
BELGIUM
Climate Alliance Brussels Office
GERMANY
Climate Alliance Germany Office
ITALY
AISFOR
CROATIA
DOOR
GREECE
Anatoliki
CYPRUS
Cyprus Energy Agency
HUNGARY
Climate Alliance Hungary Office
BULGARIA
Sofia Energy Centre
ROMANIA
Ashoka
POLAND
Polish Network of Energy Cities

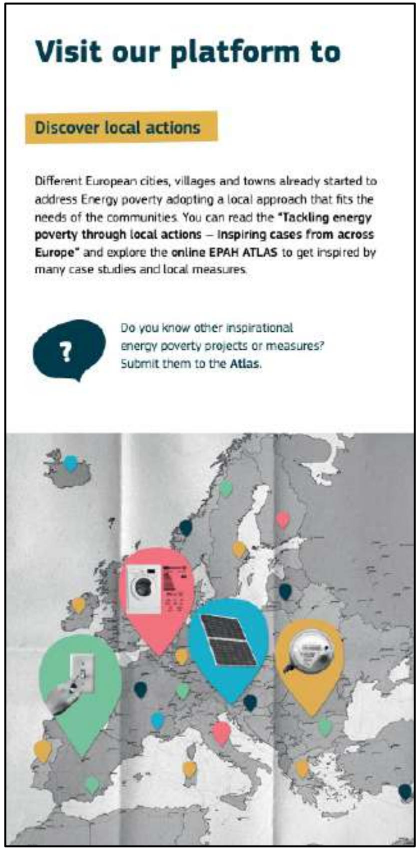
Energy Poverty Advisory HUB (EPAH)


European Commission

EU
Energy Poverty
Advisory Hub


Awareness about energy poverty is growing across Europe. Energy Poverty Advisory Hub, the leading EU initiative run by the European Commission at the request of the European Parliament, is a collaborative network of stakeholders aiming to eradicate energy poverty and accelerate the just energy transition of European local governments.

Our mission is to be the centre of energy poverty expertise in Europe for local governments and all stakeholders interested in taking action to combat energy poverty in Europe.

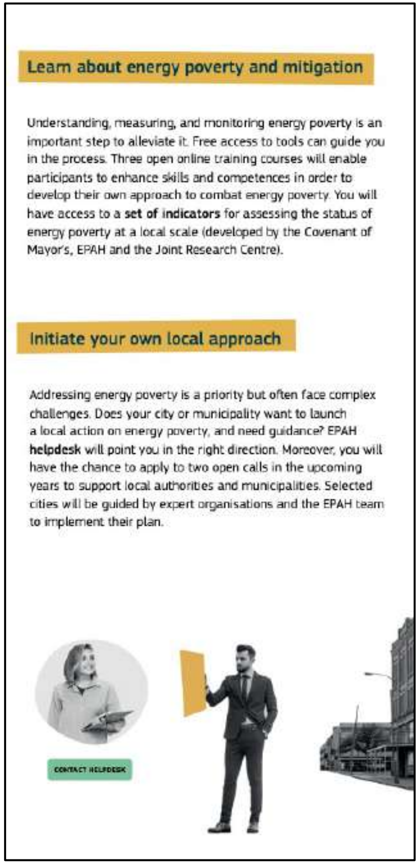

Visit our platform to

Discover local actions

Different European cities, villages and towns already started to address Energy poverty adopting a local approach that fits the needs of the communities. You can read the **"Tackling energy poverty through local actions – Inspiring cases from across Europe"** and explore the **online EPAH ATLAS** to get inspired by many case studies and local measures.

?

Do you know other inspirational energy poverty projects or measures? Submit them to the **Atlas**.


Learn about energy poverty and mitigation

Understanding, measuring, and monitoring energy poverty is an important step to alleviate it. Free access to tools can guide you in the process. Three open online training courses will enable participants to enhance skills and competences in order to develop their own approach to combat energy poverty. You will have access to a **set of indicators** for assessing the status of energy poverty at a local scale (developed by the Covenant of Mayor's, EPAH and the Joint Research Centre).

Initiate your own local approach

Addressing energy poverty is a priority but often face complex challenges. Does your city or municipality want to launch a local action on energy poverty, and need guidance? EPAH **helpdesk** will point you in the right direction. Moreover, you will have the chance to apply to two open calls in the upcoming years to support local authorities and municipalities. Selected cities will be guided by expert organisations and the EPAH team to implement their plan.

CONTACT HELPDESK

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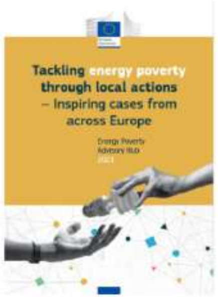
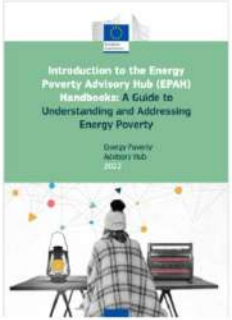
Energy Poverty Advisory HUB (EPAH)

Research and Practical Guides

The report [Tackling energy poverty through local actions – Inspiring cases from across Europe]	The [EPAH ATLAS]	The [Introduction to energy poverty and the EPAH – Introductory course]	The [Introduction to the Energy Poverty Advisory Hub (EPAH) Handbooks: A Guide to Understanding and Addressing Energy Poverty]





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Tackling Energy Poverty Through local actions

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Local solutions

- *Capacity building and training*
- *Communication campaign*
- *Consumer advice, protection and empowerment*
- *Household energy efficiency and refurbishment*

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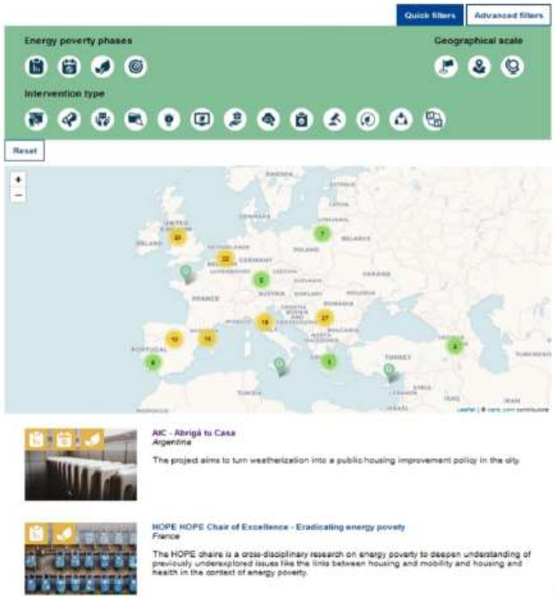
EPAH ATLAS - Structure



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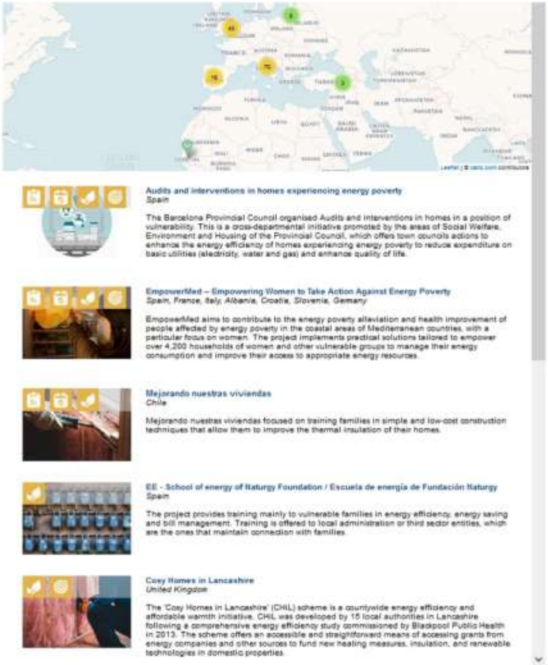
EPAH ATLAS - Projects and Measures List



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EPAH ATLAS - Detailed Description

EnPover - Municipalities Municipal low-cost energy efficiency measures to alleviate energy poverty

The EnPover project aims to support municipal actors to fight energy poverty on their territories and equip them with a set of universal and ready-to-use tools boosting implementation of low-cost energy efficiency measures in households most prone to energy poverty. Also, a network of municipal professionals exchanging relevant ideas and good practices was created and a series of inspiring workshops and exchanges organised. And last, but not least, the project envisaged designing and implementation of model awareness raising campaigns that may inspire other cities to follow.

The project is a good example of highlighting municipalities role in tackling energy poverty, raising their awareness of the topic and providing them with a collection of different tools to be used locally to support energy poor and vulnerable consumers. It was implemented in 9 pilot municipalities, who built their capacities and exchanged on how to tackle energy poverty on the local level. They also launched pilot awareness raising campaigns targeting energy poor and vulnerable.

With a budget between 100 000 and 1M€ the EnPover project contributed its share to tackling energy poverty in Europe through the following activities:

- establishing a network of municipal professionals interested in advancing the topic in their municipalities;
- mapping and consulting relevant stakeholders, i.e. public authorities and organisations working with vulnerable households to seek their expertise and advice;
- collecting best practice examples of successful initiatives supporting energy poor households to reduce their energy consumption and improve comfort of living;
- organising workshops with experts from municipalities, tenants, private homeowners, consumer protection, social welfare and energy consultation organisations;
- organising study visits to see in reality examples of best practices on tackling energy poverty;
- developing a toolkit of customized and ready-to-use support schemes boosting implementation of low-cost energy efficiency measures in private households;
- launching model awareness raising campaigns addressed at private households, especially those most vulnerable to energy poverty;
- wide dissemination of project results and products.

Useful links: EnPover

The project started in 10/01/2019-06/30/2021

It benefited: national/local authorities

It addressed the topics of: air quality, health, behaviour, heating and cooling system, household appliances, indoor comfort (thermal comfort, housing quality), information and awareness, energy access and consumption, energy efficiency, vulnerable consumers (disabled, students, tenants, public housing inhabitants)

Some concrete key performance indicators (KPIs) of the project include: Total number of municipalities directly involved in capacity development: 9 municipalities Number of direct physical interactions between participating municipalities (via workshops and site visits): 5 Physical (or on-line) interaction Positive feedback on the usefulness of toolkit on low-cost energy efficiency measures for vulnerable households by staff of participating municipalities: 9 Feedback through questionnaire Number of municipal energy awareness raising campaigns: 5 Local campaign N/A

Jasło, Sztum, Zamość, Poland; Nuremberg, Munich, Germany; Szentendre, Miskolc, Budaörs, Tószeg, Hungary

Geographical scale: Regional

Energy poverty phase: Diagnosis, Planning, Implementation, Impact assessment

Intervention type: Capacity building and training, Communication campaign, Consumer Advice, protection and empowerment, Household energy efficiency and refurbishment, Stakeholders' Engagement

Professionals involved: Engineer

Type of funding: National funds from the European Climate Initiative (contract number: 81247746) of the German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety (BMU).

SDGs addressed:

FEMENMAD Feminisation of energy poverty in Madrid. Exposure to thermal extremes.

FEMENMAD project arises in the light of the results from the technical study on energy poverty in the city of Madrid, which discloses 20% of households at risk of energy poverty and pointed out households headed by women among most disadvantaged groups. As the official information available for analysing energy poverty is not disaggregated by sex 16 mix or semi-structured interviews were carried out. These 16 households' indoor thermal conditions were monitored as well. Interviews were accomplished with women who live in households suffering from energy poverty. The interviews were designed along with the social entities that provided the sample of households. All interviews were conducted at participants' residences, directly to women (or helped by relatives due to language).

They all allowed the installation of thermometers in the living room and in the main bedroom to record indoor temperature and relative humidity for a year. Moreover, in this project exposure to thermal extremes has been explored. The risk of suffering from summer energy poverty is firstly explored according to the gender of the main breadwinner within each household. The geospatial distribution of their vulnerability, as a function of income, is compared with other indicators related with their exposure to high temperatures: the housing energy efficiency and the UHI intensity. Then, an evaluation at the sub-municipal scale is carried out among the different subgroups in which a woman is the main breadwinner. The analysis of the selected variables was conducted using a hot spot analysis based in the Getis-Ord statistic (Gi*), which evaluates the autocorrelation of each variable according to its spatial distribution. The project includes an analisys of the causes of morbidity and mortality by age and sex in the city of Madrid from cold spells or heat waves demonstrating that women are more vulnerable group to the impacts of thermal extremes on their health.

With a budget between 10 000 and 100 000€ the activities developed include:

1. Analysis of the feminisation of energy poverty at the local level in the city of Madrid through the income and expenditure approach.

2. Analysis of the feminisation of energy poverty at the Regional level in Madrid through the income and expenditure approach.

3. Qualitative analysis through interviews and monitoring indoor temperatures.

4. Analysis of feminisation of energy poverty through the living conditions approach.

5. Study of impact of thermal extremes in health.

6. Recommendations for improvement in the public policies of Madrid in the area of housing and health.

7. Workshops for understand the energy bills.

The project started in 2019 and lasted until 2020. It benefited the disabled, elderly, energy-poor, gender-oriented, low income and policymakers. It addressed the topics of hard to treat homes, area-based targeting, health, behaviour, heating and cooling system, household appliances, human rights, communities, income, indoor comfort (thermal comfort, housing quality), cultural factors, information and awareness, debts, distributional effects, economic crisis, quality of dwelling, employment, energy access and consumption, safety (fire, electricity/fuel), energy prices, equipments, equity and justice (gender equality, socio-economic gaps), extreme weather conditions, vulnerable consumers (disabled, students, tenants, public housing inhabitants), gender.

Useful links:

Final report (english and spanish)

Workshop presentation.

Final report presentation

Short presentation.

Environmental pollution.

Energy & Buildings.

Madrid, Spain

Geographical scale: Regional

Energy poverty phase: Diagnosis, Implementation

Intervention type: Characterisation, Consumer Advice, protection and empowerment, Data collection, Monitoring and Impact Assessment, Stakeholders' Engagement

Professionals involved: Engineer, Member of a local/national authority, Researcher, Technician

Type of funding: Local funds from the Madrid City Council under the call "2018 Grants to carry out research projects on global citizenship and international cooperation for Development"

SDGs addressed:

European Commission

Energy Poverty Advisory HUB (EPAH)

Online training courses

3 **ONLINE** training courses will be issued during EPAH:

EPAH intro course
- All stakeholders
- Background on energy poverty

EPAH compact course
- Policy decision makers
- How to **design local policies and plans**

EPAH extended course
- Practitioners
- Practical aspects of energy poverty mitigation

Push local actions

https://elearning.energypoverty.eu

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Energy Poverty Advisory HUB (EPAH)

Bringing Energy Poverty Research into local practice - Exploring Subnational Scale Analyses

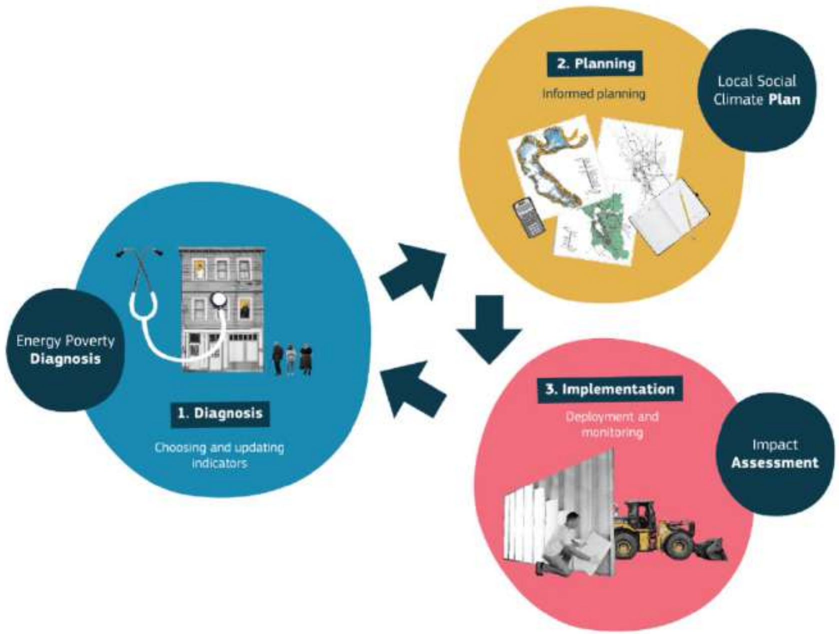
- Introduction
- Energy Poverty Measurement Overview
  - Other Supporting Indicators
  - Multi dimensional Metrics

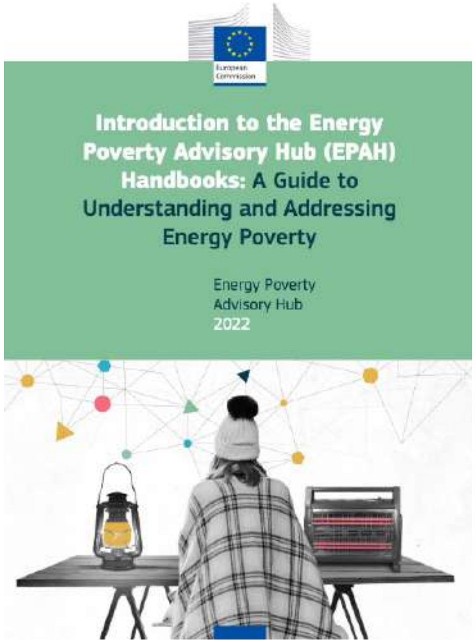
- Review of Fine-Scale Studies
  - Data Sources
  - Indicators and Methods
- Unexplored Indicators and Data Sources
- Recommendations for Policy making

European Commission

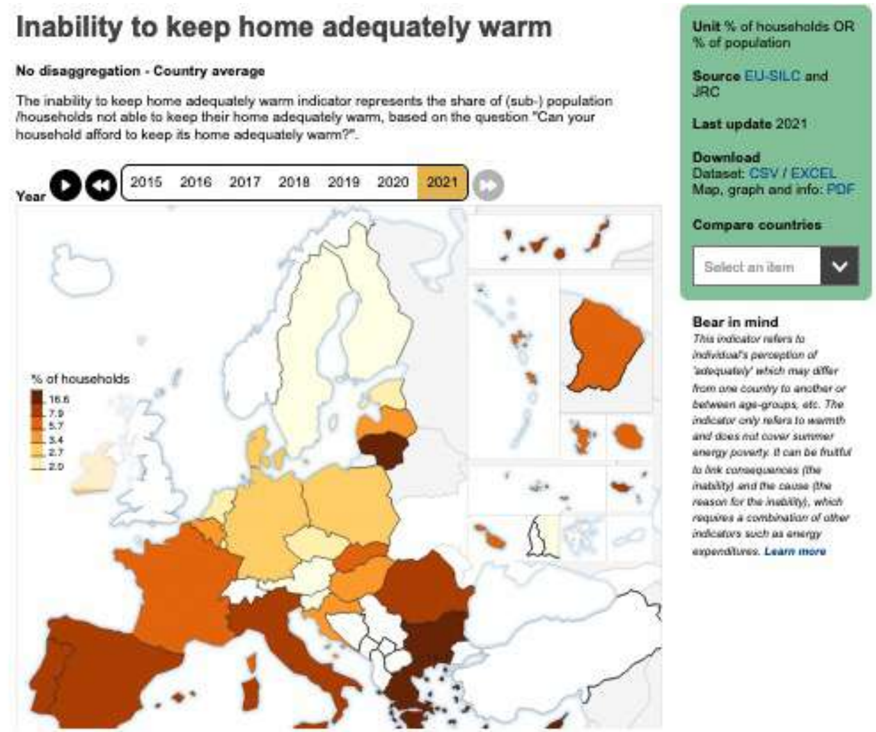
Energy Poverty Advisory HUB (EPAH)

THE HANBDOOK TRILOGY





Energy Poverty Advisory HUB (EPAH) – Indicators Dashboard



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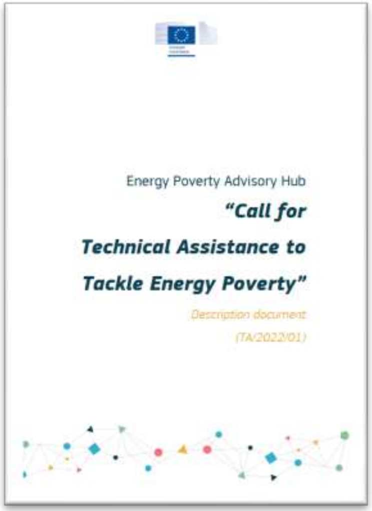
Energy Poverty Advisory HUB (EPAH) - Technical Assistance

Tailor-made solutions



Energy Poverty Advisory Hub

"Call for Technical Assistance to Tackle Energy Poverty"

Description document

(TA/2022/01)

Municipalities under the Technical Assistance	35
Country represented	11

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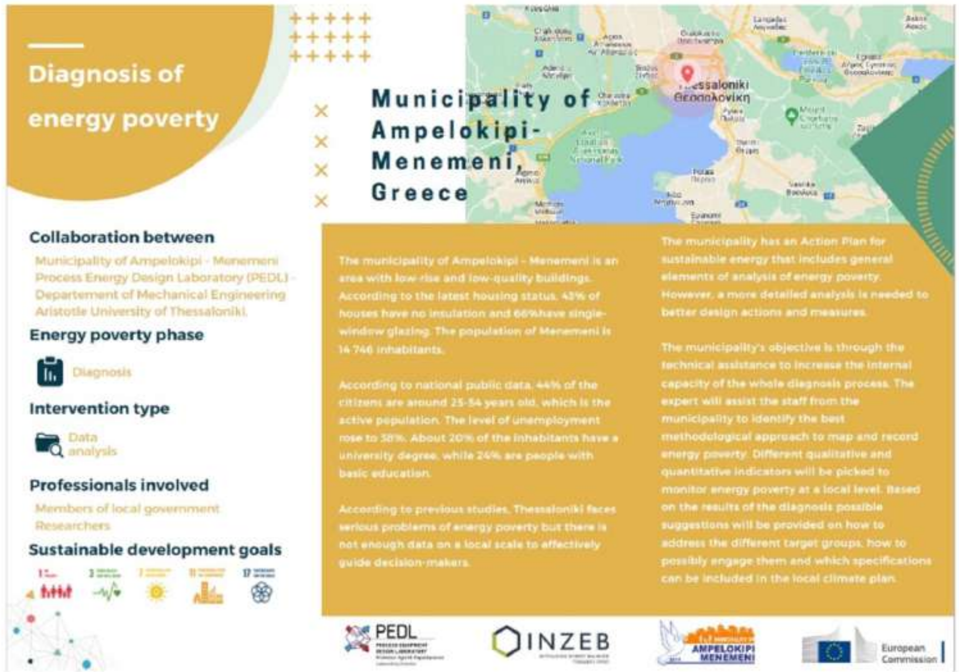
Energy Poverty Advisory HUB (EPAH) - Technical Assistance

Energy Poverty Advisory HUB (EPAH) - Technical Assistance

Technical Assistance examples



Diagnosis of energy poverty

Municipality of Ampelokipi-Menemeni, Greece

Collaboration between

Municipality of Ampelokipi - Menemeni
Process Energy Design Laboratory (PEDL) -
Departement of Mechanical Engineering
Aristotle University of Thessaloniki.

Energy poverty phase

Diagnosis

Intervention type

Data analysis

Professionals involved

Members of local government
Researchers

Sustainable development goals

The municipality of Ampelokipi - Menemeni is an area with low-rise and low-quality buildings. According to the latest housing status, 43% of houses have no insulation and 66%have single-window glazing. The population of Menemeni is 14 746 inhabitants.

According to national public data, 44% of the citizens are around 25-54 years old, which is the active population. The level of unemployment rose to 38%. About 20% of the inhabitants have a university degree, while 24% are people with basic education.

According to previous studies, Thessaloniki faces serious problems of energy poverty but there is not enough data on a local scale to affectively guide decision-makers.

The municipality has an Action Plan for sustainable energy that includes general elements of analysis of energy poverty. However, a more detailed analysis is needed to better design actions and measures.

The municipality's objective is through the technical assistance to increase the internal capacity of the whole diagnosis process. The expert will assist the staff from the municipality to identify the best methodological approach to map and record energy poverty. Different qualitative and quantitative indicators will be picked to monitor energy poverty at a local level. Based on the results of the diagnosis possible suggestions will be provided on how to address the different target groups, how to possibly engage them and which specifications can be included in the local climate plan.

European Commission

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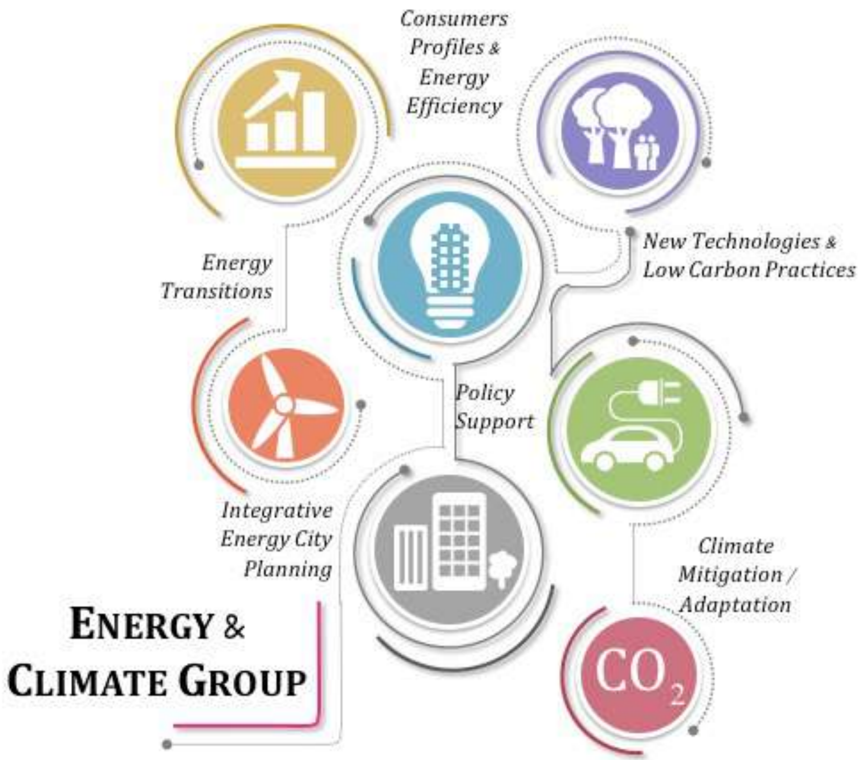
Final Messages

Combination of inefficient buildings, low incomes, and high energy prices are the main drivers for energy poverty vulnerability.

The main solutions to this structural problem must be focused primarily on improving energy efficiency in buildings and integrating renewable energy into homes.

Policies and measures aimed at mitigating EP must be implemented at the regional level, and therefore also the need to study the problem within each country in its different regions, municipalities, civil parishes.

Climate change will be responsible for the increase in heat waves, cold spells and consequently impacts in public health, which will amplify the severity of this problem and the vulnerability of the population to it.



Thank You

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