



# Policy recommendations on energy poverty identification and segmentation

**This policy brief has been inspired by the specific demand to address the cross-cutting issue of poor heating practices and increased air pollution in urban and rural areas in the Eastern European countries. Its major aim is to support the national and local policy makers in exploring the multiple environmental and climate impacts of energy poverty by focusing on the development and implementation of joint clean air and energy poverty policies.**

## Introduction

More than 50 million households in the European Union are struggling to attain adequate warmth, pay their utility bills on time and live in homes free of damp and mould. Although energy poverty is rapidly spreading all over EU, it has distinct specificities in Eastern European countries: low-income households cannot afford to change the old inefficient heating equipment or replace the poor quality heating fuels. Thus, they become primary cause for dramatic seasonal increase in air pollution in their communities. The situation is worsened by existing energy efficiency programmes and schemes aimed at alleviating energy poverty in Eastern Europe, which allocate grants that allow vulnerable households to directly purchase and utilize humid wood and low-quality coal and burn them in highly inefficient stoves. The undesired and negative effect of the low deployment of new and efficient heating technologies is the households' continuous use of inefficient heating equipment that produces excessive polluting emissions which threaten and deteriorate the population's health. The lack of precise data on the quantities and quality of the fuels used makes estimation of environmental, climate and health impacts difficult.

Energy poverty and poor air quality are both long standing issues in the Eastern Europe, but have yet not gained sufficient EU-wide recognition. Unfortunately, the multidimensional nature is often neglected in the political perception of energy poverty – especially the link between energy poverty and air quality is not considered by the current policies and measures. As a result, policies for energy, environment and climate issues are not integrated in most cases. In addition, there is a lack of ambitious targets for energy efficiency and reduction of climate and air pollutants.

## Definition and monitoring

Defining energy poverty has and still is causing numerous debates<sup>1-6</sup>. Nevertheless, it is a crucial first step in addressing energy poverty. Boardman<sup>7</sup> explains the challenge in the following manner: All of these definitional issues are compounded by the circular argument: who is energy poor depends on the definition, but the definition depends on who you want to focus on and this involves political judgment.

Bouzarovski<sup>8</sup>, who is one of the pioneers of research in the field of energy poverty focusing on specificities of Eastern Europe, argues that energy poverty is a situation where a household is unable to access a materially and socially–necessitated level of energy services in the home. When discussing possible definitions of energy poverty in the Eastern European context it is important to understand impact of households' physical and institutional settings—in particular the inheritance of an inefficient residential stock built at a time of heavily subsidized energy prices and, very often, connected to an out dated

energy supply system<sup>9</sup>.

Defining energy poverty is also difficult because it is related to availability of data, which is scarce or not at all available in Eastern European countries. Likewise for the fuels used for heating: the estimation of the impact of wood and coal used for domestic heating is difficult due to lack of comprehensive data. The emission inventories on national level poorly represent the amounts of wood and coal used for domestic heating and such inventories on local level are difficult to obtain, structure and keep up-to-date.

Another significant challenge is to deepen the understanding across 'spatial patterns' of energy poverty<sup>10</sup>. There is a need to understand the variations in energy poverty depending on the various economic, social, to some extent historic and cultural, but also political and institutional contexts and legacies. These variations will not only help to understand that there is no single recipe to fight energy poverty, but they can also ease the transfer of good practices between regions that face similar challenges.

The first step for getting a real measure of energy poverty is to define and agree on indicators which need to be monitored for understanding energy poverty. To this end, the following steps would be recommended:

- Make a more specific analysis of the problem on the local and national level in Eastern Europe
- Continue discussions to adopt measurable definition of energy poverty – at national and EU level
- Develop and adopt national and EU wide indicators for monitoring energy poverty
- Improve the data collection based on selected universal indicators so that results are comparable between countries and change monitored throughout different time periods and energy poverty statistics continuously monitored
- Define vulnerable groups at national and EU level

It should, however, be noted that action cannot be delayed in expectation of a definition and measurement instruments. Neither can these be developed void of action.

## **Energy efficiency measures**

Financial support, such as payment of energy bills or giving support for heating fuel, should be used as a measure after all cost-effective energy efficiency options have been implemented. It should not be the first measure as it does not contribute to overall improvement of quality of life and it does not promote rational energy use.

Energy poverty should be included in national level energy efficiency programmes. National programs for energy poverty should offer implementation mechanisms which are specifically designed for improvement of energy efficiency for the vulnerable consumers. Measures designed for tackling energy poverty through implementation of energy efficiency measures should focus on:

- Low-cost energy efficiency and energy saving measures (efficient indoor lighting, draft proofing of doors and windows, reflective foils for radiators, thermometers etc.)
- Replacement of household appliances ("old for new")
- Replacement of inefficient heating system (with use of renewables when possible)
- Different levels of retrofitting building envelope

- Deep renovation of the buildings whose occupants are vulnerable should be promoted and, if impossible due to deteriorated state of the building, replacement homes should be ensured.
- Subsidies, which are suitable and useful for energy poor households (e.g. high financing rates), should be shaped, especially for deep renovation of dwellings.
- Loans with no interest should be supported, also mainly for deep renovation.
- All state owned social housing should be renovated to improve the housing conditions.

Programs for increasing 'energy literacy' and energy advising should interlink with other energy efficiency programs. Vulnerable groups should be provided with information needed to understand their energy habits and read energy bills. Information on costs and benefits of different energy efficiency and energy savings should be available and presented in simple manner.

Energy efficiency programmes for energy poor should be carefully designed so that they would be available and accessible to those in need. It is important to minimise bureaucracy and if necessary free assistance should be provided for filling in documentation and applications for receiving various forms of support for energy efficiency.

Lack of funding for energy poverty abatement measures is a common problem in the Eastern Europe region, but also elsewhere. EU funding, i.e. through the cohesion funds, should offer funding lines targeted specifically for tackling energy poverty. On a national level, funds available through different schemes, i.e. through the Emissions Trading Scheme and other polluter pays schemes, or national lottery, should also be considered for funding energy efficiency improvements in vulnerable households.

In Eastern Europe countries it is often possible to find programs that support the payment of energy bills or heating fuel, which are of short-term or one-time character. It needs to be explored how funds from such programs can be reorganised to support longer-term steps, such as energy efficiency or renewables measures.

While most of the Eastern European region has high rate of electricity grid availability, there are still some locations without access to the grid. In such cases, in addition to all aforementioned energy efficiency measures, it is necessary to ensure access to electricity. When there is no cost-effective option to connect affected households to the power grid, option which can be considered is to develop support programs for installation of off-grid photovoltaic systems in remote areas as this would enable some energy poor households to get access to energy.

### **Energy efficiency measures with impact on the air quality**

The deployment of old and inefficient stoves in the Eastern European countries is rather high. The use of heating stoves and boilers is typical for the areas that are not supplied with another infrastructure (district heating, gas infrastructure), have easy access to wood and coal, and are socially segregate. Even though regulations on the quality of the stoves are enforced, they will be applied to the newly produced equipment and the old stoves will not be affected; also, the penetration of the eco-labelled stoves will be slow due to the persistent use of the old stoves and the inability of energy poor households to invest in woodstove replacement.

This is why the following is recommended:

- strengthening the policy and regulation over heating practices and fuels,
- introduction of standards and protocols to ensure high-quality heating devices and fuels,
- systematic social support for vulnerable households for high-quality heating systems and fuels
- emission limits (PM, CO) for new stoves and boilers that are at least on a par with the upcoming eco-design standards for these appliances
- demand that old stoves and boilers that do not meet the limit values for old appliances (installed before 2010) have to be shut down or retrofitted with a filter
- heating systems to be subject to recurring measurements on site, which are done by the chimney sweeps
- before putting into operation, all appliances have to be checked and registered by a chimney sweep
- they also investigate the appliance at least two times in seven years (in addition to regular visits for maintenance/ usually once a year)
- only specific fuels are allowed to be used in appliances, e.g. only allowed to use firewood with a maximum humidity of 25% (fuel storage is regularly checked in the course of the fireplace inspection by the chimney sweeps)
- pellets and woodchips to be subject to certification schemes
- define the duties and the role of chimney sweeps by law
- fines for illegal burning should be high
- market incentive programs to provide funding for solar/geo-thermal heat as well as biomass appliances (pellet, wood chip or logwood boilers as well as specific pellet stoves)
- financial support for particle separators
- information and alerts about high exceeding of PM concentrations
- in-depth understanding of the energy behaviour associated with wood and coal use and the housing conditions

The woodstove changeout roadmaps might be an effective policy tools to achieve the positive change. They can support the local and national authorities in planning and designing effective joint policies that address energy, environmental and social challenges and strive for achieving sustainable, resilient and low-carbon future for their communities.

The enforcement of strict regulations and control over the heating devices and fuels used is very important, along with immediate start of replacement of old and inefficient heating equipment with new, highly efficient stoves on modern biomass. For this, adequate financial support schemes for energy poor households should be designed, accompanied by promotion of energy efficiency measures, RES deployment and strong awareness campaigns on energy poverty and air quality impacts on environment, economy, and health.

## **Pathways to structural solutions**

To improve the planning and implementation of energy poverty measures, the following recommendations on how to approach the shaping of those measures are suggested:

- Develop also long-term strategies, not only short-term measures
- Recognize locality-specific nature of the problem and involve local actors into designing strategies
- Ensure the sustainability of the energy poverty policy and measures by switching the responsibility for tackling the problem from local actors and NGOs to high level decision makers
- Build capacities of decision makers to take leading role in solving energy poverty issues

- Design, implement and monitor energy poverty related policies in fully participatory manner involving wide range of interested stakeholders in the process, especially focusing on creating links between the social, energy and environmental sector
- Ensure monitoring and evaluation of energy poverty measures and programmes
- Strengthen the social actors, public authorities, researchers and academia as well as NGOs through ensuring more funding specifically targeted for energy poverty
- Stimulate connections between the social, energy, health and environmental institutions and stakeholders and ensure data exchange models
- Work towards aligning of energy and social policies (social support related to energy poverty and vice versa) and linking energy poverty policies with a wider array of policies, such as employment, housing or pension policies

While it is important to develop action at EU and national level, it needs to be emphasised that local action is also of paramount importance. The more locally one acts, the easier it becomes to cause synergies between stakeholders, to find agreement, to act within a common framework, to design suitable solutions, to find the necessary resources and maximize results.

Another important aspect for developing integrated and comprehensive policies is to do constant evaluation of success of the measures. It is important to judge the efficiency of measures against a quantification of results. All too often action is taken without following up on its impact, which brings uncertainty and inconsistency into the process of policymaking. In order to determine whether an action has been effective or not, it is essential to know in what respect the efforts and resources involved have reached their goal, what can be done to optimize for results and to compensate for the side-effects produced.

Integrated and comprehensive joint actions may bring significant reductions in the air pollution from residential burning. It is important to note that joint energy and social measures applied to energy poor households will not only improve the outdoor air quality, but also the indoor air and support improved housing conditions and quality of life.

Integrated measures and actions at local, national and European level to tackle air pollution will bring about significant benefits for all sectors. By reducing air pollution, decreased health expenditure, increased economic benefits and decreased climate impact may be expected. So, it is crucial to bring forward policies that adequately address all aspects of air pollution and ensure co-benefits for the energy, climate, environment, economy and health.

## The InventAir Team



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