

TOWARDS THE DEVELOPMENT OF A DEFINITION OF ENERGY POVERTY TO SUPPORT BUILDING RENOVATION PROGRAMMES

Summary of analytical report

In Bulgaria - especially in situations of sharp rises in energy prices - there is a growing understanding that "energy poverty" is a serious societal problem that requires considerably more, better integrated, and focused efforts than the current policies and measures. However, there is still no official definition of energy poverty, which significantly reduces the possibility of taking concrete measures to curb this phenomenon, and the existing ones are mainly aimed at limiting its consequences, and in very rare cases at eliminating its causes. Unfortunately, all three factors that determine the level of energy poverty - low incomes, high energy prices (compared to the purchasing power of the population), and buildings with poor energy performance - are present, and Bulgarian households continue to be the most inefficient and energy poor in Europe.

The solution that can address the causes and lead to sustainable long-term effects for alleviating energy poverty is the deep energy-efficient renovation and maintenance of residential buildings: it directly reduces energy costs and the need for energy subsidies, while decreasing carbon emissions and allowing for the modernisation of the heating systems.

In line with Regulation (EC) 2018/1999 on the Governance of the Energy Union and Climate Action, the intention to tackle the problem has been set out in the 2019 Integrated National Energy and Climate Plan. The development of such a definition is also intended as a reform in the latest available version of the National Recovery and Resilience Plan (NRRP) dated 16.10.2021 under the name

"Development of a definition and criteria of "energy poverty" for households in the Energy Act for the purpose of market liberalization and financing of energy efficiency projects".

We believe that it will be extremely difficult, if not impossible, to apply the same definition in both cases, at least due to the fact that the relevant support programmes for vulnerable users would have a different function: social protection, in the first case, and investments in the building stock, in the second. Therefore, the aim of this study is to support efforts to establish a definition and criteria to

facilitate the financing of energy efficiency projects in the building sector,

by overcoming one of the main barriers for practical application of the new renovation scheme requiring co-financing by the homeowners (already provided for in the NRRP), namely the participation of low-income households.

To this end, it is necessary to develop and adopt a methodology that contains criteria for an objective assessment of households' incomes and the state of the building stock, which will help to identify the most effective solutions for directing the public resources. In this way, it

is possible to achieve a real reduction in energy poverty and the risk of energy poverty at the systemic level, as well as to provide access to a wider range of energy services, cutting the unnecessarily high energy costs for specific household groups, gradually overcoming the limitations in the scope of the existing building renovation programmes.¹

The development of a "formal" definition of "energy poverty", and in particular its practical implementation, involves taking into account and responding to several serious challenges arising from the specificity of the problem:

- Limited to the territory of private households
- It varies both temporally and spatially (national, regional, local manifestations)
- It has a high degree of social and cultural sensitivity (the assessment of the level of satisfaction of energy needs is almost entirely subjective, even if there is a regulatory framework)
- Contradictory perception and understanding of the problem by society at large, as well as by specific stakeholders (energy service users and providers, local and national authorities, financial institutions, NGOs, media, etc.)
- Difficulty in selecting the most appropriate indicators for determining the level of energy poverty - both in a stand-alone role and in combination, especially in view of the need to target public funds predominantly using objectively measurable and traceable indicators

From a practical point of view, the proposed definition should be applicable to the current situation and expectations for the development of renovation programmes in Bulgaria in co-financing mode, providing objective criteria for the identification of households that can benefit from facilitated participation conditions. These criteria must be practically calculable according to officially approved methodologies and in view of the applicable legislation. At the same time, the definition should be sufficiently simple to allow for the practical implementation of the process of identifying and supporting energy-poor households. Last but not least, it must be socially acceptable and appropriate for communication, using understandable and logical criteria to be perceived by households outside this group.

In view of the current development of policies in the field of building renovation²,

for the purposes of preferential financing of vulnerable users under building renovation support programmes, the following is proposed:

¹ Since the start of the National Programme for Energy Efficiency of Multi-family Residential Buildings in 2015, just over 2,000 buildings have been renovated in Bulgaria, with over 65,000 in need of renovation. With the funds expected under the NRRP, building renovations will reach just over 3,000 by 2026, which would mean that over a ten-year period we would only meet the EU's one-year target for building renovation rate.

² Developed in the Long-Term National Strategy to Support the Renovation of the National Building Stock of Residential and Non-Residential Buildings by 2050, and embodied by the NRRP Project 9a "Support for the Sustainable Energy Renovation of the Residential Building Stock", providing for a 20% co-financing of homeowners in multi-family buildings.

DEFINITION OF ENERGY POVERTY:

Energy poor are those households whose disposable income, after ensuring the statutory temperatures in the heated part of their homes, falls below the official poverty line

The costs for ensuring the statutory temperatures are determined in the energy audits through an additional protocol, which is drawn according to the instructions of the programme, as in both cases the area of the common parts of the building is not taken into account in the calculation:

a) for buildings that are not connected to the district heating network, data on the national average energy mix for heating are used³;

(b) for buildings connected to district heating networks, the actual prices of the district heating service shall be used, regardless of whether the household uses it or not and whether there are heating units connected to the network.

Unlike the existing heating subsidies, which can benefit only about 250,000 households, the application of this definition is expected to cover about 40% of Bulgarian citizens who fall into the lowest income groups and objectively cannot afford investment to maintain and renovate their homes.

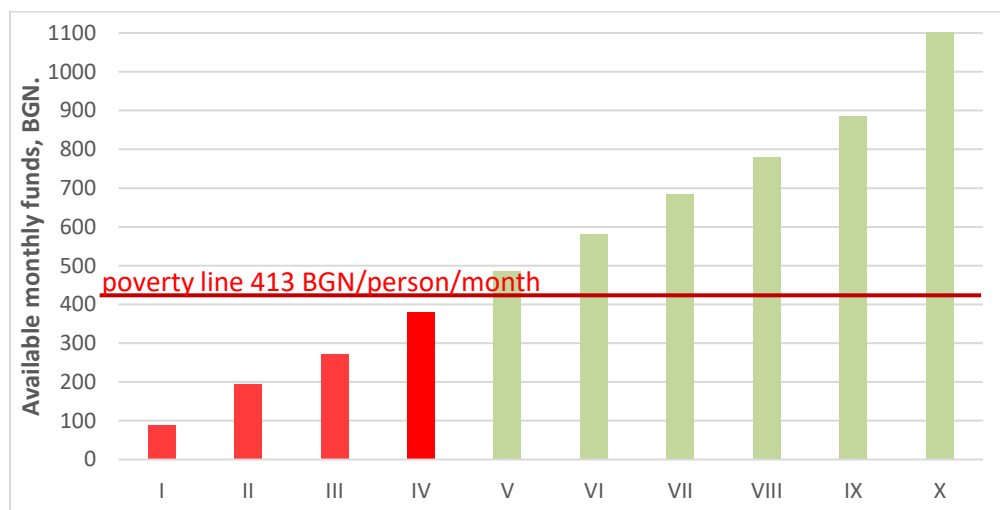


FIG. 1. Available funds per household member after payment of the costs for adequate heating, BGN / month.

Critical remarks

Of course, like any definition, the one proposed in the present study also has its drawbacks, but it is believed that the benefits of its application would far outweigh the possible transaction costs and / or danger of misuse. Some of the main points of criticism are the following:

- It does not take into consideration that the poverty line already accounts for energy costs. However, this is an acceptable compromise, as long as the poverty line is an

³ This avoids the possibility to manipulate the mix for the specific building

objectively traceable parameter, and its use does not harm the interests of consumers.

- It does not take into account household cash savings/bank deposits, as there may be low-income households but large savings. In this respect, the rules of support programmes may impose additional requirements, such as households applying for additional support not having savings in excess of the full cost of the renovation for the dwelling in question.
- It does not take into account situations in which a low-income household (e.g., a single pensioner) has a large, high-value dwelling. This is considered a tolerable compromise, given the few such cases and the difficulty of implementing alternative housing solutions for these homeowners.
- In the normalization of energy consumption, it is assumed that optimal temperature of the household is achieved at all times, whereas the dwelling should not be heated 24 hours a day. It is generally accepted that in situations of economic poverty the home should be heated around the clock, as if all members of the household were working, it would only fall into the energy poor group in exceptional cases.
- It does not take into account the costs of hot water, cooling, lighting and appliances. The reasons for this are as follows:
 - o The cost of hot water is individual, depends more on hygiene habits than economic factors, and cannot be averaged; the application of the current methodology for normalized expenditures would increase the calculated expenditure of households to values that are not adequate to reality.
 - o The energy efficiency requirements for lighting systems and household appliances are subject to other legislation; measures relevant to these elements are not financed under building renovation programmes;
 - o Cooling costs are manifested in a small part of the year and have relatively less impact on the economic status. Additionally, the energy audit methodology does not foresee the normalisation of energy consumption in relation to the achievement of cooling standards.⁴

As can be seen, the reasons for these shortcomings are technical and stem either from the specifics of the legislation or from certain complementary policies. Despite them, it is believed that the definition is practically applicable and objectively reflects the needs of households, especially as heating costs account for around 70% of total energy costs, and the heating season is 180-190 days, so they are still the main factor for energy poverty. However, these components should certainly be taken into account in the future refinements of the definition in coordination with the development of regulations and calculation methodologies.

Procedure for applying for financial assistance for participation in building renovation programmes:

In the energy audits, which are obligatory when applying for financing of building renovation projects, the necessary costs for ensuring the statutory temperatures are calculated. The

⁴ Shading measures can be recommended in the methodological guidelines for the surveys, although due to this deficiency of the methodology they will always have negative financial parameters

heated part of the dwelling is determined by a supplementary questionnaire to the audit, and in the case of multi-family residential buildings, it is recommended to drop this questionnaire and to take into account the entire area of the dwelling. The applicant submits a declaration to the institution financing / managing the program, declaring the income for the last heating season (October - April). The calculation is made ex officio according to a publicly available formula: the difference between the average monthly household income and the average monthly normalized energy expenditure of the household during the heating season (October-April) is less than the income defined as the poverty line (average for the same period). Approved applications (after verification by the Social Assistance Directorate at the Social Assistance Agency⁵) shall be submitted to the homeowners' association, applying a random monitoring and verification mechanism.

Critical remarks

Although the proposed procedure envisages the use of existing mechanisms, information systems, and is also in line with established practices, it also raises suspicions of possible misuse. However, this is an organizational problem that should be possible to overcome. The main concerns are the following:

- Many people will declare low incomes; existing informal income (e.g., from undeclared rents) will not be reported. However, with a well-established control mechanism (including on signals from neighbours) the breaches can be identified, as can other financial misconduct of potential violators, thus significantly increasing the risk for them.
- There will be corruption motives to skip certain declarations in case of inspection. It is believed that the risk of corruption is not high, as the amount of aid is relatively low and with a strong control mechanism, violations can be easily detected. It is of course necessary that the existing system of penalties is actually enforced when such violations are detected.

Possible results:

At present, after covering the costs of achieving the normatively established temperatures in the heating season in a dwelling with an average area of 65 square meters, the four decile groups with the lowest incomes remain with a cost level that exceeds their disposable income.

⁵ Changes to laws or regulations may be necessary.

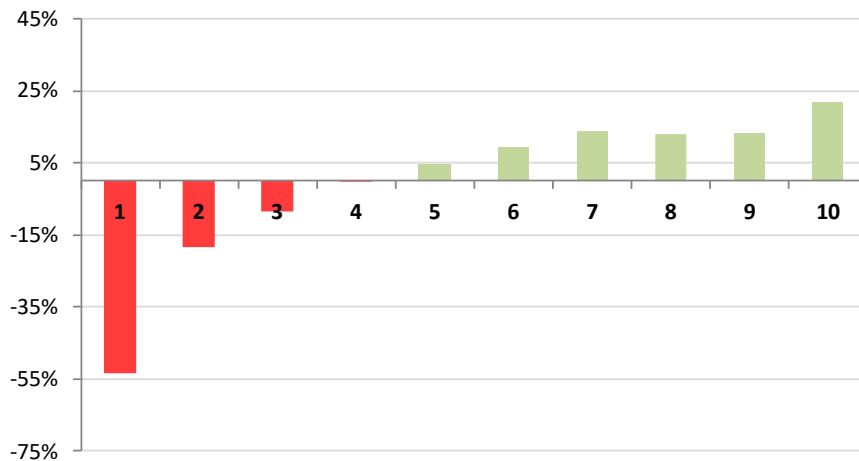


FIG. 2. Difference between the average monthly income and the average monthly total expenses during the winter months when providing adequate heating for a house of 65 m²

When implementing building renovation measures, a significant proportion of these households will be able to reverse this negative trend, while only the lowest income groups would need to continue to benefit from the existing energy subsidies. Thus, combining these two types of public support would have a very significant social impact, alongside the undeniable energy, environmental and financial benefits.

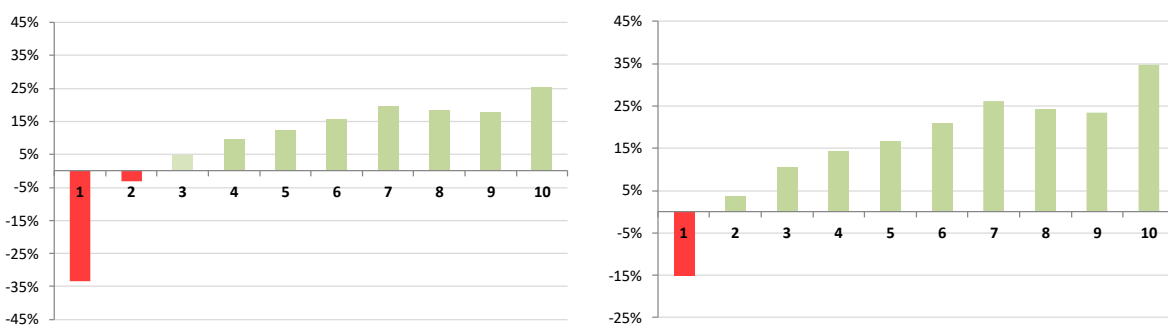


FIG. 3. Difference between average monthly income and average monthly total expenses during the winter months in providing good heating of a house of 65 m² after renovation to energy consumption class B and after deep energy renovation

RATIONALE AND FUTURE TRENDS IN DEFINING ENERGY POVERTY

As the analysis has shown so far, the approach to the problem must combine an optimal mix of energy efficiency and social assistance measures. In other words, energy poverty should not be seen solely as a social problem and the corresponding measures taken entirely with the idea of reducing its consequences. It is equally important and much more sustainable in the long run that efforts are made addressing the causes of energy poverty, which range from poor performance of individual residential buildings, and the residential building stock in general, to the lack of a wider range of energy services.

If, at present, building renovation support programmes rely entirely on grants and only the latest version of the NRRP introduces a 20% co-financing component for the owners, it can be expected that in the future policies will continue to evolve in the direction of reduction of the grant financing. Thus, currently, the definition of energy poverty is only intended to determine which owners should benefit from preferential terms in this programme, i.e., to be enabled to participate without deductible given the inability to provide any funds due to their low income. To this end, the proposed definition could play the desired role; however, in the event of a further reduction to the grant component, additional differentiation of households according to their socio-economic status will be needed to identify the most appropriate financial mechanisms for them while making optimal use of the limited public resources.

From this point of view, the definition of energy poverty should provide a better opportunity to qualify households according to the level of energy poverty, which in turn can help refining the toolkit of measures that can be applied in tackling the problem. Such an approach should use indicators aimed at comparing the costs to a specific reference group (e.g., the indicator "The disposable household income after costs incurred to achieve a statutory housing temperature is below the average for the decile income group costs for other consumer goods and services"). Such an approach presupposes the differentiation of at least the following categories of households:

Households in "**Absolute Energy Poverty**": A group of households that cannot achieve adequate energy consumption without significant external support (financial or material); as well as a complete inability to benefit from additional energy services.

Households in the "**Risk of Energy Poverty**": A group of households experiencing temporary difficulties in achieving adequate energy consumption without relying on external support; as well as the relative inability to benefit from additional energy services.

Households with "**Limited access to energy services**": A group of households that do not experience difficulty in achieving adequate energy consumption, but for various reasons are not able to benefit from a wider range of energy services.

Based on the proposed definition, we invite the representatives of national and local authorities, professional and branch organizations, and social partners to an active dialogue, which can reflect the interests of all stakeholders and enable the successful start of building renovation programmes within the set timeframe and scope. It is our conviction that neither the efforts to overcome energy poverty nor the official definition of this concept should be seen as a purely administrative act imposed by EU requirements. It is first and foremost a moral obligation of society as a whole and the government in particular, and taking this step, despite the complex and multifaceted nature of the problem, cannot be dismissed without a serious risk of further social division and ostracism of a significant part of the population, leading to a number of negative economic and social consequences.

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The full report is available in Bulgarian at:

<http://www.eneffect.bg/images/upload/new/DefEnEffectEnPov%20-%20final.pdf>