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METHODOLOGY FOR COMBATING ENERGY POVERTY IN BULGARIA AND THE EUROPEAN UNION

ABSTRACT

Energy poverty remains a pressing challenge for the European Union, particularly in Eastern European countries like Bulgaria. This article aims to propose a comprehensive methodology for combating energy poverty by integrating policy analysis, empirical findings, and actionable recommendations. Key methods include an examination of institutional approaches, quantitative survey analysis, and a critical evaluation of existing policy frameworks. The findings reveal systemic inefficiencies and propose targeted interventions, including enhanced public awareness campaigns and the adoption of innovative technologies. This study contributes to understanding and addressing energy poverty in the transition to a sustainable and carbon-neutral economy. (Bouzarovski, 2018).

KEYWORDS: Methodology, Energy poverty, Bulgaria, EU, Policy frameworks

JEL: I32, K32, B41

INTRODUCTION

Energy poverty, defined as the inability of households to afford basic energy services, such as heating, cooling, and lighting, is a multidimensional issue with economic, social, and environmental implications. (Boardman, 1991). In Bulgaria and other Eastern European nations, the prevalence of energy poverty has been exacerbated by rising energy costs, inadequate infrastructure, and socio-economic disparities. This study seeks to address this issue by proposing a methodology that leverages both empirical research and policy interventions to mitigate energy poverty. Objectives include analyzing institutional readiness, understanding consumer perceptions, and providing actionable recommendations.

1. LITERATURE REVIEW

Research on energy poverty spans various disciplines, focusing on its causes, impacts, and solutions. Boardman (1991) first introduced the concept as "fuel poverty," emphasizing the disproportionate share of income spent on energy. Subsequent studies, such as those by Bouzarovski (2018) and Peneva (2021), have highlighted the need for targeted interventions in

Eastern Europe. Despite numerous EU initiatives, including the "Clean Energy for All Europeans" package, gaps persist in addressing the root causes of energy poverty. (European Commission, 2019)

Key Themes:

Economic Factors: Rising energy costs and low household incomes.

Infrastructure Challenges: Inefficient housing and outdated energy systems.

Policy Responses: EU directives and national action plans, including the NECP framework. (Peneva, 2021)

2. METHODOLOGY

Research Aims and Objectives:

To evaluate the effectiveness of current policies in mitigating energy poverty.

To identify key barriers to implementation.

To propose actionable solutions.

Survey Design:

A 20-question survey distributed to representatives of the Energy and Water Regulation Commission and the general public.

Focus areas include income levels, perceptions of energy poverty, and readiness for behavioral change.

Sampling and Representativeness:

While non-representative, the survey employed neutral language and comprehensive response options to ensure credibility.

Data Analysis:

Quantitative methods were used to identify trends and discrepancies in responses.

3. DEFINITION, NATURE AND CHARACTERISTICS OF ENERGY POVERTY IN BULGARIA AND THE EUROPEAN UNION

• Concept of energy poverty

In Europe, it is estimated that more than 30 million people live in energy poverty. The persistent problem of the most disadvantaged households in Europe is the disproportionality of the effects of the phenomenon. Although there is no single definition of the phrase "energy poverty", it often refers to situations where households spend too much money on energy or cannot afford to meet their basic energy needs. Early studies of energy poverty in the EU focused heavily on defining the problem, which until recently was better known under the term 'fuel poverty' rather than 'energy poverty'.

The definitions of energy poverty that exist can generally be divided into two types – focusing on the grossly disproportionate share of family income spent on energy and on families that do not spend enough energy. However, these broad categories provide only a very narrow understanding of a topic that actually encompasses many different dynamics, including economic, social, behavioral, political, geographic, and temporal. As a specific example, it is usually not taken into account that energy poverty also exists in summer, which affects existing energy poverty data and measurements.

Energy poverty has a variety of root causes, including low income, low levels of housing and inefficient equipment. Macroeconomic development, household final energy consumption, availability of different energy sources, energy pricing, housing efficiency and climate are other major factors contributing to energy poverty. Although the problem is widespread across Europe, energy poverty levels are higher in Southern and Central and Eastern European countries.

Energy poverty first appeared in EU legislation in 2009 as part of the 3rd Energy Package. Since then, the problem of energy poverty has grown in the EU, the Clean Energy for All Europeans package (proposed in 2016, adopted in 2019) has made energy poverty a key concept of EU legislation and a policy focus. In addition, Clean Energy for All Europeans introduces the NECP, a 10-year plan for how Member States align their climate and energy targets. The NEPC requires member states to estimate the number of households living in energy poverty and outline adequate measures to address the problem. Nevertheless, EPOV's evaluation of these plans has shown that the majority of EU countries still do not have a specific definition of energy poverty and fail to present targets and measures to tackle the problem and the resources available for it. Therefore, despite the urgency of the topic, many of the Member States in their strategies outlined in 2020 do not yet have a targeted one to tackle energy poverty.

4. INCREASING THE AWARENESS OF THE POPULATION AS THE FIRST KEY METHOD TO COMBAT ENERGY POVERTY

• Need to increase the awareness of the population on environmental protection issues

The quality and integrity of the environment can be preserved through public awareness. A rapidly degrading environment is the greatest threat to the existence of human beings – the loss of valuable natural resources and pollution lead to harmful effects as well as abiotic stress on flora and fauna. Public awareness is one of the main principles in environmental management and includes:

● developing sensitivity and awareness to environmental problems;

● planting and learning the strict need to protect natural resources and the environment;

● promoting the active participation of people in the protection and development of the environment;

● development of expertise for actively identifying and finding solutions to environmental problems;

● assessment of socio-economic, ecological and aesthetic aspects and impacts of various environmental programs initiated to improve the state of the environment.

It is very important to inform the public about the deadly consequences of environmental degradation as its continuation would lead to mass extinction of life if left unattended and reformative measures not taken. People are facing a number of environmental challenges that need to be addressed rigorously for sustainable growth and development – an environmental approach needs to be followed by every nation to make people aware of the threats posed in the name of industrialization and development. The world's natural resources are limited, and humans depend on natural ecosystems for the products derived from forests, grasslands, oceans, and agriculture and livestock, as well as water, air, soil, minerals, oil, etc., which are an indispensable part of the systems for maintaining the standard as it is known today. However, life itself would be impossible without healthy nature, and population growth puts pressure on these limited natural resources – the Earth cannot sustain the ever-increasing demand for resources. Besides, their misuse is the other factor contributing to the deterioration of the environment. Waste and water pollution, generation of non-biodegradable materials such as plastic, non-recyclable electronic waste, nuclear waste are other serious threats. Manufacturing processes generate solid waste, chemicals and gases that pollute the environment. The alarming increase in waste generation cannot be managed by natural processes, as the majority of synthetic waste is non-biodegradable. They continue to accumulate in the environment, leading to various diseases and other adverse environmental effects that seriously affect people's lives. Air pollution leads to chronic respiratory diseases, water pollution to gastrointestinal diseases, and many toxic pollutants are known to cause cancer. This alarming situation can only be resolved through initiatives taken by every citizen on a daily basis to conserve natural resources. Neither governments alone can manage and protect the environment, nor can a group of environmentalists prevent environmental degradation – awareness can only be done to create self-responsibility. Efforts at the individual level can therefore lead to sustainable development.

Depletion of natural resources and environmental degradation necessitate an action plan for environmental protection. Climate change, biodiversity loss, ozone depletion and illegal trade in endangered species, habitat destruction, land degradation, groundwater depletion, invasive species, environmental pollution, solid waste and sewage disposal are serious threats for forests, marine, freshwater and other terrestrial ecosystems. Ignorance and lack of concern about environmental problems are obstacles to environmental management – governments alone cannot deal with all problems without public support. Every person should be an integral part of the campaign to prevent environmental degradation because it is the citizens themselves who can reap the benefits of a clean environment. Reducing the waste of natural resources and staying alert to the sources that lead to pollution and environmental degradation will enable us to push government action to protect the environment. This is possible only through mass public awareness. The press, radio and television have a strong influence on public opinion. Media, including social media, contribute to public efforts and force politicians to respond positively to a strong social movement. NGOs and small aid groups are constantly working to sensitize people to the environment. The various green policies created by governments are the result of public efforts. Increasing the sensitivity of society to environmental problems and challenges initiates the development of skills and expertise in individuals, leading to appropriate solutions to environmental problems. The idea of development without destroying the environment can

only be realized through public awareness. The public can play an important role in creating laws and enforcing them.

5. RATIONALE OF THE STUDY

• Need to conduct empirical research

The fact is that, to a very large extent, the deepening of energy poverty is the result of the ambition of EU politicians to make the Union a global environmental leader - but the price for this must obviously be paid by vulnerable consumers and less developed economic countries. Conducting the empirical research will help to understand to what extent the institutions (in this case, the Commission for Energy and Water Regulation) and their representatives correctly assess the situation with energy poverty in Bulgaria and to what extent citizens have the understanding and willingness to change their consumption habits; how and under what conditions to make this happen. The aim of the empirical research is to see the similarities and differences in the perceptions of the representatives of the institutions as professionals in the field of energy and ordinary users on the issues of energy poverty and the mechanisms for solving this problem, or at least limiting its aggravation.

• Choice of methods

For the purposes of the empirical study, a questionnaire of 20 closed questions was developed, the same for the representatives of the Commission for Energy and Water Regulation and for the citizens. A major argument in favor of the decision to make the surveys identical is the fact that the dissertation examines the similarities and differences in the attitudes and views of professionals and consumers – this is most easily done when the measurement instrument is identical.

• Sampling, reliability and representativeness

The study does not claim to be representative – the sample size is grossly insufficient to be so. The construction of the survey and the considerations set out in the previous point regarding the choice of method work in favor of its credibility. The questions are asked as neutrally as possible, so that their wording does not lead to a certain answer, and the options are as comprehensive as possible and cover the entire spectrum of possibilities. Thus, the empirical study can be considered credible.

• Presentation of the results of the empirical study. Comment and analysis of the results

111 people participated in the study.

- the size of the respondents' average monthly income: 25.9% do not answer, 29.6% 2001-2500 BGN, 44.4% 1500-2001 BGN
- whether, according to experts, the situation with energy poverty in our country is improving or worsening: 13.0% can not decide, 9.3% partly yes, 14.8% partly no, 63.0% definitely no

- the following questions explore the reasons why the respondents believe that the situation is getting worse or better, respectively: 22.2% dos not change, 66.7% it gets worse, 11.1% can not decide

• Approbation of the methodology and recommendations for improving the energy poverty situation based on the results of the empirical study

It is clear from the answers that the methodology is not applicable in Bulgarian conditions. First of all, the reason for this is the neglect that the institutions demonstrate regarding the need to focus on informing the population. It is clear that consumers are negative about having to change their habits under pressure, without clarity on exactly what needs to happen, how long it will take and what it will cost them financially.

Findings and Discussion:

Challenges Identified:

Institutional Neglect: Limited focus on consumer education and engagement.

Financial Burdens: Rising costs disproportionately affect low-income households.

Technological Barriers: Limited adoption of energy-efficient technologies.

Survey Highlights:

Income Distribution: 44.4% of respondents reported monthly incomes between 1500–2001 BGN.

Perception Trends: 63% of experts believe energy poverty is worsening, citing policy gaps and insufficient resources.

Public Awareness: 66.7% identified a lack of clarity and communication as critical barriers.

Proposed Solutions:

Policy Enhancements: Alignment with EU standards and targeted subsidies for vulnerable households.

Technological Integration: Adoption of smart energy systems and renewable energy sources.

Educational Campaigns: Nationwide initiatives to inform the public about energy-saving practices and available resources.

Case Study:

Sofia Municipal Energy Efficiency Program:

Outcome: Reduced energy consumption by 20% within two years through targeted investments in housing insulation and public awareness campaigns. (Integrated Plan in the Field of Energy and Climate, 2020)

Lessons Learned: Importance of stakeholder engagement and clear communication strategies.

6. GENERAL FINDINGS AND CONCLUSION

International organizations and government agencies are deeply concerned about addressing energy issues as a pillar for achieving major development goals. In light of this consideration, the United Nations has set affordable, reliable, sustainable and modern energy for all as a goal for the implementation of the 2030 Agenda. The European Pillar of Social Rights affirms that energy is an essential resource that every household must obtain. Energy poverty is therefore a major issue in civil society and a priority that forms the ladder of numerous initiatives and policy implications set by the European Commission and its stakeholders. In addition, the energy sector is undergoing rapid changes and challenges, driven by global concerns about climate change, changes in energy prices, social welfare and sustainable development goals.

Understanding energy poverty requires a consistent and valid definition, which is inherently misleading and ambiguous. The imprecise definition of the term makes it difficult for the academic community and policy makers to identify households at risk of energy poverty. Both energy poverty and poverty are vague concepts, i.e. the former explains the energy-related aspect of the latter. Nevertheless, a commonly accepted definition of energy poverty is related to inadequate access to energy services; namely, energy poor are people/households who cannot afford basic needs in their homes, such as cooking, heating, cooling and lighting. Energy poverty is a multidimensional concept that is covered by different aspects. The European Commission claims that there is no single definition of energy poverty, although it accepts that it is expressed by the inability to keep homes sufficiently warm. Energy poverty is associated with low incomes, high energy prices and energy inefficiencies that are technically related to infrastructure. This question reflects the economic and social conditions within the economies, i.e. it illustrates various aspects of poverty and welfare that are attributed to the distribution of energy. To this end, the concept is examined from two perspectives, that is, through a micro-study and a macro-perspective. Primary indicators are designed to capture energy poverty in terms of disposable income and expenditure on energy services, while secondary indicators reflect many dimensions, i.e. indicators that reflect energy prices, housing infrastructure, characteristics of the building stock and poverty levels.

From another perspective, access to energy services is the ability that an individual acquires in terms of social integration. This stems from the fact that the distribution of energy within households is uneven, suggesting that energy poverty can increase inequalities and threaten individual well-being and health conditions. More specifically, the inability to meet daily needs, e.g. cooking, cooling, heating and lighting, is evident in several households in different economies. Approximately 8% of the European population is unable to keep their home warm enough in 2020, while there are large differences between EU member states. Households' difficulties in meeting basic human needs create barriers that burden well-being and human development.

As a result, the EC is concerned with tackling energy poverty and is adopting long-term schemes and initiatives to mitigate energy, social and economic disparities. The global financial recession of 2008 and the outbreak of the health crisis of 2019 have had a deep and lasting impact on social and economic inequalities between EU countries. In recent years, European policy measures against poverty and income inequality have been based on promoting convergence to a minimum steady state. However, the understanding of the differences in the

economic and social sectors followed by the above-mentioned questions is ambiguous. More precisely, the real benefits of political measures and initiatives vary in individual member states, despite the formation of a single economic space. From a holistic perspective, it is important to understand how energy disparities and wider socio-economic inequalities are interconnected, through the lens of differences in energy poverty outcomes.

The share of heating service costs in the final expenditure of households in the EU is high and as a result puts vulnerable consumers at risk. Consumer vulnerability, energy poverty and interruptions are among the main challenges facing European member states. Energy is a major source for heating and cooling services given the diverse climate in the EU.

RECOMMENDATIONS:

Strengthening Institutional Capacity: Establishing dedicated units within national and local governments to address energy poverty.

Innovative Financing Models: Leveraging EU funds and public-private partnerships to support renewable energy projects.

Research and Development: Continuous evaluation of policy impacts and emerging trends.

Future Directions:

This study underscores the need for longitudinal research to measure the long-term effectiveness of proposed interventions. Expanding the scope to include comparative analyses across EU member states will further enrich the discourse on energy poverty. (Peneva, 2021)

REFERENCES

Boardman, B. (1991). Fuel Poverty: From Cold Homes to Affordable Warmth.

Bouzarovski, S. (2018). Energy Poverty: (Dis)Assembling Europe's Infrastructural Divide.

European Commission. (2019). Clean Energy for All Europeans.

European Economic and Social Committee, 2010: Opinion on energy poverty in the context of liberalization and economic crisis http://www.knsb-bg.org/pdf/464/Energiyna_bednost-posledici_ot_liberalizaciata&ikonomi4eskata_kriza.pdf

Integrated Plan in the Field of Energy and Climate (NECP), 2020.

Integrated plan in the field of energy and climate, https://www.me.government.bg/files/useruploads/files/national_energy_and_climate_plan_bulgaria_clear_22.02.20.pdf

Peneva, T. (2021). Measuring Energy Poverty in Bulgaria. Balkanida.

The Energy Poverty Advisory Hub, for the European Commission. (2021, November). Tackling energy poverty through local actions Inspiring cases from across Europe. https://energy-poverty.ec.europa.eu/system/files/2021-11/EPAH_inspiring%20cases%20from%20across%20Europe_report_0.pdf

The European green deal. Brussels: European Commission (2019) https://ec.europa.eu/info/sites/info/files/european-green-deal-communication_en.pdf