

Energy poverty is a significant problem in countries of the European Union. Depending on the definitions and research methods adopted, it is estimated that in Europe there are between 50 and 125 million people affected by the energy poverty. The issue of energy poverty is one of the most important challenges for the contemporary economic and social policy in Poland. In micro-economical terms, the exclusion and energy poverty cause difficulties in using energy for heating the house, preparing hot water, lighting the rooms and using appliances. This in turn affects the basic components of the quality of life. In rural areas in Poland, despite significant financial transfers under the Common Agricultural Policy, there is still considerable poverty, including energy poverty. Households of farmers are distinctively different than other groups of households in Poland. They are characterised by a relatively larger number of family members and a relatively low average disposable income. These factors, along with the state and rate of development of the selected elements of the technical energy infrastructure (including gas infrastructure), cause that many farmers' households do not satisfy their basic energy needs.

The main objective of the research is to characterize the processes and phenomena related to the energy poverty in rural areas in Poland, with a particular emphasis put on farmers' households. The problem of energy poverty in the context of agriculture (relations: farmer's household – agricultural holding) has not been the subject of scientific interest so far, but is an important element of improvement of the quality of life of rural residents. The existing studies in Poland, prepared mostly by independent research institutes, concern mainly the scale of the problem. The findings obtained in this project, especially at the microeconomic level, will bring new values to the theory of economics in the area of economic functions of a household (production and consumption functions). Under the project, it is planned to conduct three-stage empirical research based on the author's survey questionnaires:

- 1) quantitative surveys of farmer's households (size of the test sample – 480 farmers' households, surveys representative in the scale of Poland);
- 2) qualitative research (size of the test sample – 60 farmers' households, surveys among the holdings from the first stage);
- 3) qualitative expert's studies (size of the test sample size – 30 people).

The analysis of the questionnaire survey data will be carried out on the basis of mathematical and statistical methods, which will allow obtaining more comprehensive knowledge about the examined phenomenon (the co-occurrence of categories of the selected economic, social, ecological and technological variables). The scope of the planned research will enable a comparable analysis in different contexts, which may be valuable for a better understanding of the methods of resource management in farmers' households in Poland. This in turn may contribute to increasing the knowledge about the energy poverty, in particular about the specific character of this phenomenon in rural areas, in their entire economic, social and natural complexity. The analysis and assessment of the energy poverty in farmers' households as a multidimensional economic, social and environmental problem requires the use of a holistic approach.