

# Socio-Economics Aspects of Housing Quality in the Context of Energy Poverty

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**Abstract.** Energy poverty is a term that is used for energy shortages in terms of providing electricity, heat, cold, etc. and it primarily means a limited or no access to these resources in the context of lack of necessary infrastructure, inability to connect to the transmission system, low income households etc. It is a problem that has a significant impact on the development and formation of young people. Quality of life is closely linked to housing and housing is determined by other factors, and energy poverty can be regarded as one of the most important factors. The aim of this paper is to name the energy poverty as an important determinant of the social dimension of housing quality, which may be a negative boundary element to the social exclusion of people.

**Keywords:** Housing quality · Social exclusion of people · Energy poverty

## 1 Introduction

Energy poverty is an acute problem not only in developing countries but also in several European countries. As depicted in Fig. 1, energy poverty is caused by an interaction between high energy bills, low income and poor energy efficiency, in addition to supplementary determinants such as housing tenure and quality of energy supply [1].

The term energetic poverty is meant as inability of the population to pay bills for energy in the household. Nowadays one of the official and publicly accessible sources of measurement of the energetic poverty is in this view the EU-SILC survey investigating the share of population, which cannot afford to keep adequate warmth in the house. In the Slovak Republic such measurements have been done since 2004, but they are based on subjective evaluation of respondents. Among EU countries Slovakia belongs to countries in danger of energetic poverty. Up to 2008 energetic poverty in Slovakia lowered due to economic growth. However, since 2009 under the influence of world economic crisis it has been already growing while the most endangered are mainly households with low income.

For example, Great Britain (as example of the country that is still in this field) operates with the term of so-called ‘fuel poverty’. Energetically/fuel poor is, according to their approach, the household, which needs for purchase of fuel more than 10 % of their disposable income. But this is just fuel used for transport. Involving of expenses on petrol and oil into energetic poverty is quite problematic, because from objective point of view we should also implement fuel paid indirectly via services of public transport and also it is not always possible to distinguish which part of expenses on transport is inevitable for provision of basic life needs (as e.g. inevitable travelling to work related to unavailability of work closer to home) and which part is created by upmarket services (as travelling for fun or holiday to from the view of needs inadequate destinations). If we, according to English methodology, (10 % limit of expenses in proportion to net income) evaluate also energetic poverty of bill payment for household, an average Slovak citizen should be considered as energetically poor even in the long term view (during 10-year followed period) as it is also seen in Fig. 2.

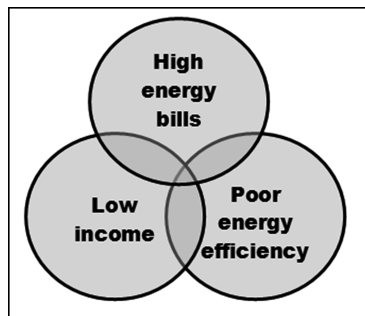


Fig. 1. Causes of energy poverty [2]

**Legislative Aspects.** In the Slovak legislation this term is defined in the Law No. 250/2012 Coll., As amended: “energy poverty refers to a condition where the average monthly household expenditure on electricity, gas, steam for heating and domestic hot water make up a significant share of the average monthly income of the

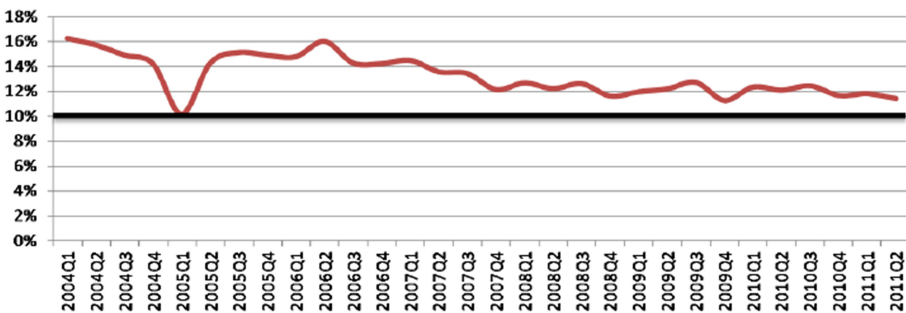


Fig. 2. The share of household expenditures on energies to their net income [6]

household.” Energy poverty means difficulty or inability to ensure suitable temperature conditions (according to the World Health Organization for a comfortable temperature in the living room considered 21 °C and in other rooms, 18 °C), as well as the difficulty or inability to have other essential energy services for a reasonable price [3]. It is alarming that (according to the International Energy Agency) currently almost 1.4 billion people do not have access to electricity. Consequences of energy poverty [2]:

- damp and mouldy living conditions,
- an increased risk of heart disease,
- school absences due to worsened asthma [4],
- reduced food intake – “heat or eat”,
- dangerous coping strategies such as fuel disconnection.

One of the ways how to measure the poverty as well as energetic poverty is the view on the growth of indebtedness or savings of the population (expressed as a difference between net income and net expenditures). It might be widened also with the share (or volume) of their expenditures on so-called ‘luxury’ products and services (as e.g. expenses on holidays and so on). This approach results from assumption, that ‘poor households’ will restrict the above mentioned expenditures as the first and they will not increase their savings.

## 2 Theoretical Basis and Methodology

Housing is closely linked to the quality of life and the right to live is a fundamental human right. It creates conditions for improving the quality of life, utilizing the potential of the territory and to attract skilled labour into urban areas. Ensuring of these needs would probably alleviate poverty (including energy) and social exclusion which is still in many European countries a significant challenge. This implies that housing is one of the fundamental rights and the approach to this right determines access to other basic rights and to live in dignity [5]. Housing problem in terms of social aspects can be divided into two main levels:

- problem of citizens who are not able to “get” flat,
- problem of people who have flat, but not have enough funds to cover fees associated with its use.

As shown, the support issue is not only the financing of housing, but also access to the apartment itself. The economic situation in individual households is largely affected by the deregulation of rents and housing-related services. Following this dominant trend of the economic efficiency of housing is necessary to create adequate living conditions for weaker social communities, for example, young families, families with several children, elderly or severely disabled persons. However, this trend means another rent increases and also increase in charges for services related to housing, including charges for heat, gas, electricity - the overall increase of expenses related to housing (see Fig. 3). It must be said that energy poverty is a consequence not only of low income but also high energy consumption. Without creating the appropriate compensatory measures in social policy this actually means disproportionate impacts on low-income groups.

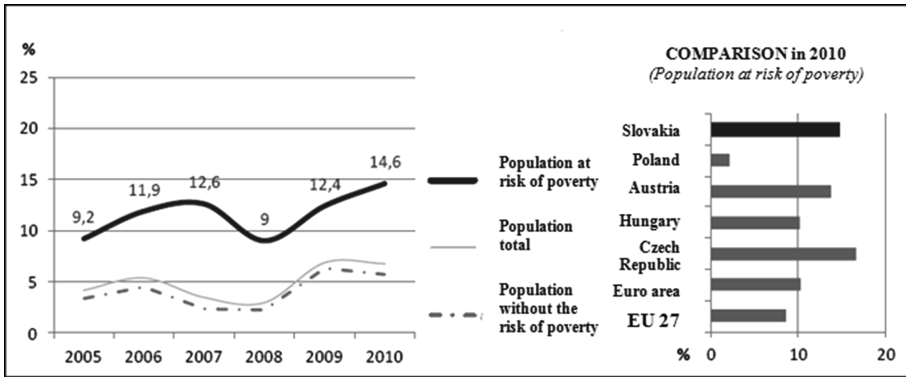


Fig. 3. Proportion of population with arrears for housing [6]

In literature as well as in practice in many European countries, including the Czech Republic and Slovakia, we meet with two basic definitions of social housing. They differ from each other by ways of housing financing, type of user and standard equipment. This means that social housing can be defined as “housing for households with clearly defined (low to zero) income”.

To better understand the adverse situation where the low-income groups are situated, it is necessary to characterize another term - “social exclusion”. This term in Western European countries had begun to be used in the Eighties and Nineties mainly due to substitute the term “poverty”. It should be emphasized that this term insufficiently takes into account quality criteria of social relations and implies a lack of material resources. Nevertheless, social exclusion is closely linked to poverty. Some authors argue that poverty hinders the realization of civil and social rights, which is precisely the result of social exclusion. Other authors consider social exclusion as an extreme form of poverty. For example in the 1993, Maastricht Treaty defined the fight against social exclusion as one of the main objectives of social policy of the European Union [7].

Social exclusion is undoubtedly associated with economic exclusion, which presents limited access to primary as well as secondary labour market, energy poverty, concluding the life chances and so on. From the available analysis it is clear that in socially excluded localities, unemployment rate is over 90 % while individuals living in such areas are limited to contact with people who are in a similar social situation.

The most important tool how to measure energetic poverty is a statistical survey. The results of subjective measurement of poverty might be helpful when evaluating the time development or when comparing between particular countries. The main disadvantage of this approach is the fact that fully objective formula for measurement of poverty would be very complicated if it took into consideration all differences which exist in different demands of inhabitants for material needs, different price levels in the regions or in different property of individuals. So in practice these formulas are limited to quite simple calculations in every country. On the basis of such simplified calculations and objective data subsistence minimum is defined and each year up-dated.

It is calculated on the basis of statistic data of growth in net income per capita as well as living costs of low income households. Other simplified mechanism used for measurement of poverty on the basis of objective data is the indicator of relative poverty derived from comparison with other citizens.

The European Commission approaches to energy poverty through the European Platform against Poverty and Social Exclusion, which is a specific instrument 2020 strategy. In fact, energy poverty can cause that households remain without heating or cooling, without hot water, light and other basic household needs, which is a serious form of shortage. The European Union currently does not have consistently defined energy poverty, on which basis the specific and common European policy aimed at this acute problem would be gradually established. On the other hand, within the European Union there is still no uniformed methodology which would measure energy poverty. Still however, there predominates an opinion that it is a condition where the cost of energy for households makes up a significant share of disposable income. That is closely related to the risk that a household can be disconnected from the system or network.

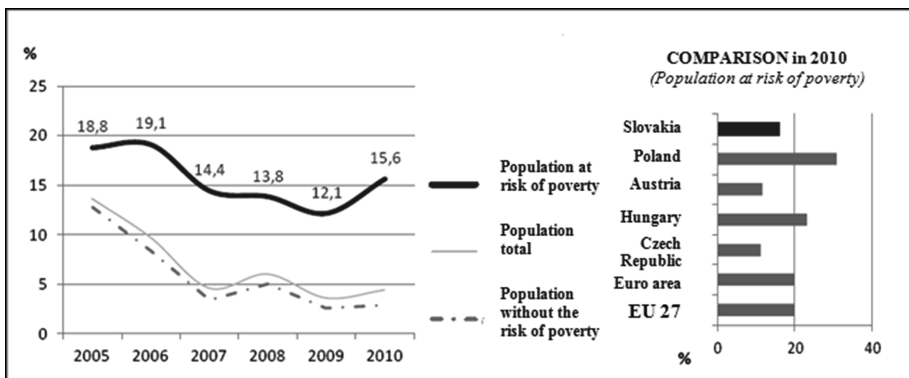


Fig. 4. Proportion of the population that cannot afford to keep their home adequately warm [6]

Expert analyses show that 40 million EU citizens suffer from “serious material deprivation”. From a demographic point of view, the most vulnerable group are children. Children from poor households have worse conditions for the development of their personality in terms of the availability and use of technical and technological capabilities, education, finding job and application and in life. In Europe, energy poverty appears by a growing number of people (project of the European Fuel Poverty and Energy Efficiency, 2009), who have difficulty of paying for energy or the energy is available only to a limited extent, because they have a low income. Flats where they live are without insulation and therefore they do not sustain heat, have inefficient equipment (heating, cooking, hot water) or energy prices are very high (see Fig. 4). Budgets of households, which are often far from urban centres and where the job often depends on the transport link, is often burdened by mobility. This applies to the elderly, single-parent families, the unemployed, welfare recipients, etc. The consequences are

different - poor mobility impact on employment, inadequate heating affects sanitation, health (dilemma “heat or food”, respiratory diseases etc.) and often leads to increased mortality, high indebtedness, social and geographic isolation.

It follows that energy poverty is a negative determinant of weakness, which is associated with other factors, where difficulties act as upward spiral and beset the people in general poverty. In 2013, 122.6 million people, or 24.5 % (Fig. 5) of the population in the EU-28 were at risk of poverty or social exclusion (AROPE), compared with 24.8 % in 2012. This means that these people were at least in one of the following conditions [8]:

- at-risk-of-poverty after social transfers (income poverty);
- severely materially deprived or
- living in households with very low work intensity.

The reduction of the number of persons at risk of poverty or social exclusion in the EU is one of the key targets of the Europe 2020 strategy.

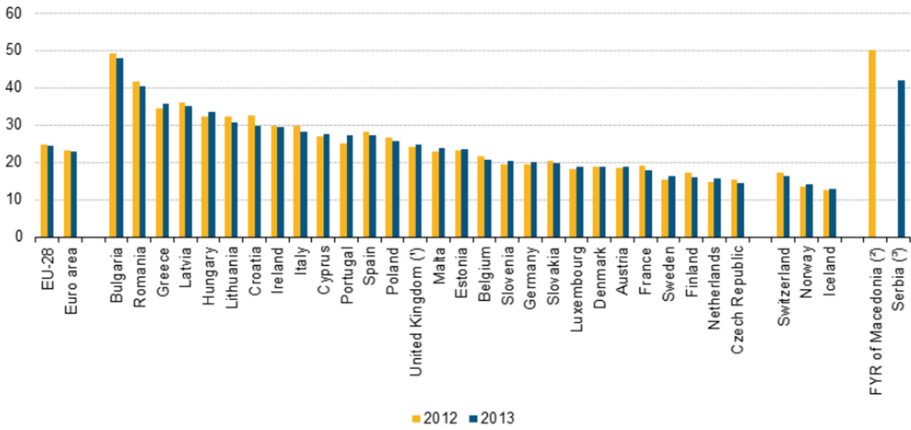


Fig. 5. At-risk-of-poverty or social exclusion rate, 2012 and 2013 (%) [8]

The at risk of poverty or social exclusion figure, for the EU-28 average, calculated as a weighted average of national results, masks considerable variation between EU Member States.

In 2013, more than a third of the population was at risk of poverty or social exclusion in five EU Member States: Bulgaria (48.0 %), Romania (40.4 %), Greece (35.7 %), Latvia (35.1 %) and Hungary (33.5 %). At the other end of the scale, the lowest shares of persons being at risk of poverty or social exclusion were recorded in Sweden (16.4 %), Finland (16.0 %), the Netherlands (15.9 %) and the Czech Republic (14.6 %).

Overall, the at risk of poverty rate has slightly decreased at EU-28 level between 2012 and 2013 by 0.3 pp. The risk of poverty or social exclusion rose by 2.1 pp in Portugal and 1.1 pp in Greece and Hungary, decreasing by 2.7 pp in Croatia and 1.7 pp in Lithuania [8].

European statistics also shows that 40 million citizens in EU suffer from “serious material deprivation”. Of the 500 million citizens of the EU, 116 million are “at risk of poverty or social exclusion”. Young people, migrants and parents - single parents are in the vulnerability of persistent poverty the most. One of the most affected post-communist countries is Romania. Three million of the 19.6 million Romania’s population lives in absolute poverty and 40 % of the population in relative poverty.

*Absolute poverty* - is a condition that is characterized by a severe lack in meeting basic human needs, including food, safe drinking water, sanitation, health, housing, education and information. This type of poverty depends not only on income but also on access to social security - Program of Action, Chap. 2.

*Relative poverty* - is a condition where people do not have sufficient resources to provide that right kind of diet, participation, welfare and benefits, which are customary in the respective community. Such an understanding is very close to understanding of the poverty in the EU. This concept is used in developed countries.

Surveys show that in Romania, but also in some other countries (such as Latvia and Lithuania), the poorest households spend a smaller share of financial resources on energy than households with higher incomes. This is due to the fact that in these countries, more residents live in one room, who share the cost of energy. In those countries with lower standards of living are therefore energy demand per capita lower, and therefore they appear as countries with lower energy poverty as developed countries of the EU. In 2005, per capita devolved 1.5 rooms in EU26 countries. In Romania and Latvia, however, it was only 0.9 rooms (at least from the current whole EU). It was followed by Bulgaria, Lithuania, Hungary, Poland and Slovakia (1.0 room per capita).

Since 1997, UN experts have introduced the method of detection level of human development using human development index (HDI - Human Development Index). This evaluation builds on the fact that the poor is not only a person who has a low income, but also takes into account the chances of survival and education. The Human Development Index is composed of three sub-indicators:

1. life expectancy, measured by expected length at birth,
2. educational attainment, measured by a combination of literacy (2/3) and the combined enrolment ratio in primary, middle and high school (1/3),
3. standard of living, measured by real GDP per capita in USD, converted through purchasing power parity.

Index determines the minimum and maximum values for each parameter. The resulting index value ranges from 0 to 1 and for each indicator were prepared fixed minimum/maximum values:

- life expectancy at birth: minimum 25 years, maximum 85 years,
- adult literacy rate 0 % and 100 %,
- real GDP per capita in USD, 100 USD and 40 000 USD.

The problem of poverty cannot be understood as only a problem of poverty, but in a broad sense as a problem of social inequality and unavailability of social goods (jobs, education, housing, health care and ensuring the opportunity of participating on the life of society).

In order to solve energy poverty, the European Union established general approaches in the form of direct and indirect support:

- social subsidy programs (direct support),
- social tariff system (indirect support),
- improving the energy efficiency.

### 3 Results and Discussion

Solving the energy poverty in European countries is addressed in different ways. Energy-poor customers in Bulgaria, Netherlands and Sweden, for example, get help from the energy supplier in way that energy supplier must inform the social or nursing service before disconnecting from the energy. In Finland and Sweden social care services pay invoices for energy, in Bulgaria and Norway poorer citizens get energy contribution. In Finland, Ireland and Slovenia, protection of energy-dependent citizens is ensured in a way that the disconnection from energy is forbidden in the case of chronically ill customers. So-called social tariffs are in Belgium, Spain, France, Italy, Portugal and Romania. Special fares on the initiative energy companies are in the UK.

Criteria for EU energy poverty are also different. Is it for example enlistment of citizens to social services (Hungary, Bulgaria), old age and disability (Belgium, Greece, Ukraine), low family income (Czech Republic, France, Greece, Great Britain), chronic disease (Finland, Hungary, Ukraine), multiplicity families (Hungary, France, Great Britain), and unemployment (Finland).

**Slovakia.** Based on analyses of the Regulatory Office for Network Industries Slovak Republic is clear that also in Slovakia there is quite a lot of households at risk of energy poverty. The most vulnerable Slovak households (under EU SILC 2012), at different breakdown of households (according to the number of dependent children, age):

- 2 adults + more than 3 dependent children 35.1 %,
- 1 adult with at least 1 dependent children 27.5 %,
- Single household up to 65 years 24.1 %,
- Older than 65 years 7.8 %,

According to age the most risky were children up to 17 years, the number of at-risk-of-poverty persons gradually decreasing with the age. According to economic activity under the EU SILC 2012 the risk of poverty threatens unemployed persons the most, almost 44.6 % out of them [9].

It can be stated that energy poverty is primarily the result of combination of the following factors:

- income level,
- level of energy prices,
- level of energy performance of buildings and homes,
- level of use of energy-saving devices - e.g. gas boilers, solar panels,
- household appliances with higher energy class and below,



- small willingness of customers to manage their consumption (shift the consumption off the peak).

In this field, the Slovak Republic has prepared a number of solutions, from which we can select the most significant:

- reflect the solution of energy poverty into social policy,
- establish a system of monitoring socially vulnerable population groups, focus on the efficiency of spending their income from the social sphere,
- ensure the efficiency and targeting of social welfare and contributions,
- create models of housing optimization of residents in proportion to their income and needs,
- adopt legislative measures to address energy poverty etc.

In June 2014, the Slovak government approved the Conception of protection of consumers in energy poverty under which a household is in energy poverty if it meets the condition that disposable average income is lower than minimal disposable monthly income. The limit of minimal disposable monthly income is given as a multiple of actual electricity and gas prices and minimal energy costs of household depending on number of its members, the nature and use of energy.

The Conception implements minimal energy consumption only by example. Actual energy prices depending on the nature and use of energy and relevant supply and distribution tariffs are regulated. Households may choose tariff depending on amount of consumption and day time.

“The substantial share of” average monthly income of household is a regulated price of electricity and gas multiplied by regulated (predefined) energy consumption of the household. Analysis of share of energy expenditures on household income is not a part of the Conception and that is the reason why today it is not possible to estimate the share of households in energy poverty.

## 4 Conclusion

Energy poverty should be regarded as a social phenomenon that is gaining prominence at the level of the entire European Union. Despite the fact that energy poverty does not yet have a precise definition, non-governmental organizations, however, consider this condition when households pay for energy more than 10 % of their income. Joining together the terms “housing” and “energy poverty” has a negative effect on quality of life, level of utilization of technical and technological possibilities in relation to education and personal development particularly with children and adolescents.

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