

HOW TO REDUCE ENERGY POVERTY IN POLAND?

Jan Rutkowski, Katarzyna Sałach, Aleksander Szpor,
Konstancja Ziółkowska

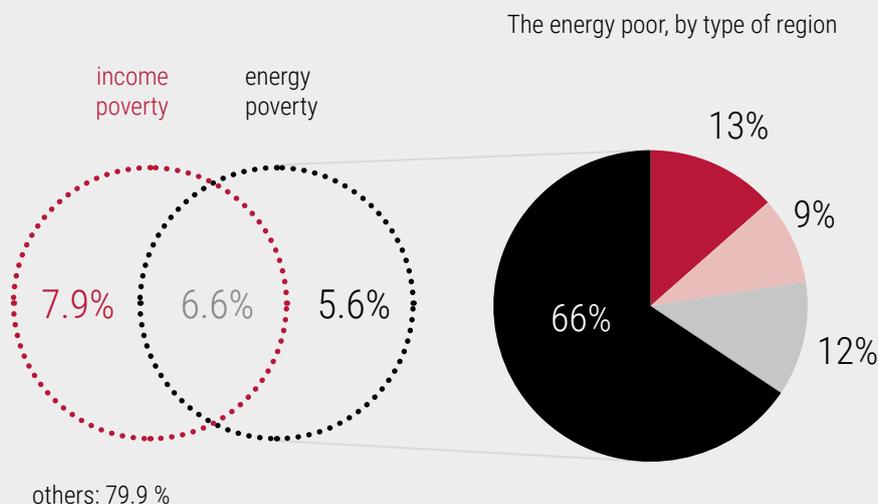
Abstract

Energy poverty only partly overlaps with income poverty. There is a significant group of people who are not able to meet their energy needs, even though their income is higher than the official poverty threshold. Energy poverty can be measured in various ways. According to the frequently used „Low Income - High Costs” indicator, 12% of Poles are energy poor. They usually live in rural areas and small towns, and as a rule do not have access to the heating network. We propose three new instruments to reduce energy poverty in Poland. First, targeted fuel allowance, which aims to alleviate the symptoms of energy poverty. Second, advisory services and energy-saving improvements. Third, thermal retrofit coupled with professional energy counselling. The latter two instruments are meant to eliminate the causes of energy poverty. Thermal retrofit is the most expensive, but the most effective tool. Developing a mechanism for practical identification of energy poor households is a big challenge. It is to be tackled by local governments, especially social assistance centres. To this end they need additional resources, both human and financial.

Key facts

- **12,2%** of Poles, i.e. 4.6 million people (1.3 million households), live in energy poverty
- **5,6%** of Poles, i.e. 2.1 million people, are energy poor, but not income poor
- **6,6%** of Poles, i.e. 2.5 million people, are energy and income poor at the same time
- **20%** of people living in rural areas are energy poor; in total they represent 2/3 of all the energy poor
- **25%** of people living in energy poverty are old-age and disability pensioners

Energy poverty vs income poverty



Introduction

One out of eight people in Poland is affected by energy poverty. They have low income and pay high energy costs. Energy poverty often coincides with income poverty, but not always: some families cannot satisfy their energy needs, even though their income is higher than the official poverty threshold. In practice, this means that they live in unheated houses or cannot afford to pay their energy bills.

The problem of energy poverty is important for three reasons. First, it lowers the quality of life and can have an adverse impact on the health of those affected. Second, it contributes to smog, because energy poor households more frequently use old furnaces and low-quality fuels. Thirdly, there is a risk that the energy poverty rate may rise in Poland as a consequence of a shift toward more ecological fuel in order to improve air quality. The effectiveness of the current instruments to reduce energy poverty is limited. They were not created to address energy poverty and are not targeted at the energy poor. In particular, the existing instruments leave out families living in rural areas and in detached houses, which are predominant among the energy poor. Energy poverty alleviation is thus a major challenge for public policy.

The aim of this paper is to present policy instruments that will reduce the scale of energy poverty in Poland. We recommend three new instruments:

- .. fuel allowance targeted at energy poor families,
- .. advisory services and energy-saving improvements,
- .. thermal retrofit (preceded by professional energy counselling).

These instruments are more effective than the existing ones, because they are designed to directly address the needs of energy poor households. Fuel allowance is meant to alleviate the symptoms, whereas the advisory services and thermal retrofit are meant to address the underlying causes of energy poverty. Thermal retrofit is the most effective instrument, but it is also the most expensive. These interventions are targeted mainly at the residents of detached houses since they are the main contributors to air pollution in Poland, and it is thus critical that they switch to more ecologically friendly ways of heating. Addressing energy poverty among the residents of old and neglected apartment buildings is an issue that needs to be tackled separately.

The implementation of the proposed measures entails the identification of energy poor households, which is not a straightforward task. We recommend that energy poor households are identified by:

- .. building information networks involving Social Assistance Centres and other agencies that have information on household incomes and housing conditions,
- .. improving the current self-identification mechanism for poor families,
- .. assessing the energy efficiency of houses by professional energy counsellors.

THIS PAPER CONSISTS OF FOUR SECTIONS:



The concept and measurement of energy poverty

A household is affected by energy poverty if it has difficulty meeting its energy needs (heating, hot water, electricity) because of low income or the characteristics of the dwelling.

The three main factors affecting energy poverty are:

- low income of households,
- low energy efficiency of buildings and devices owned,
- inefficient use of energy and equipment by households¹.

How do we measure energy poverty?

We measure energy poverty using the Low Income – High Costs (LIHC)² indicator

For a household to be classified as energy poor, it has to meet two criteria simultaneously: high required energy costs and low income. Required energy costs mean the expenses that the household would incur, taking into account its housing situation, if it were able to fully meet standard energy needs³.

The group that meets the low income criterion is identified in two steps. First of all, this group is narrowed down to the 30% of people with the lowest equivalent income. Secondly, this group is narrowed further to people who are below the individual income threshold.

The individual income threshold for a household is the sum of two figures: the poverty threshold common for all households, and the energy expenses of a particular household. The poverty threshold common for all households equals 60% of income after housing costs. By applying the individual income threshold, we include people who are slightly above the income poverty threshold, but who are „pushed into” energy poverty by high energy expenses.

BOX 1. DATA SOURCE

In our calculations, we use representative data from the Polish Household Budget Survey (PHBS) carried out by the Central Statistical Office. These are the best available data on household spending on heat and electricity. They also contain information necessary to estimate the energy efficiency of buildings: their age, type (detached houses, multi-family houses, terraced houses), and the heating method, as well as information on the area of the dwelling and the members of the household.

¹ Sometimes high energy price is also mentioned, which is not justified if the price is set on market terms and is the same for all households. It is only its relation to income that matters.

² The “Low Income – High Costs” (LIHC) indicator applied in this work has been modified from the original to fit Polish conditions and the level of detail of the available Polish data.

³ By “standard energy needs” we understand average energy consumption in a group of households living in buildings with similar characteristics and heating methods.

The LIHC is not the only available indicator of energy poverty. However, because of its advantages, we consider it to be the best measuring tool for the problem (Table 1). Alternative indicators of energy poverty include measures based on the share of (actual or required) energy expenses in income. Once a set threshold is exceeded, a household is considered to be energy poor. This threshold can be set in absolute terms (usually as 10%) or in relative terms (e.g. twice the median in the population). In the case of these measures, there is also the problem of underestimating energy poverty among some social groups. Due to its construction, the LIHC indicator, compared to other available energy poverty indicators, captures this phenomenon in the most comprehensive way.

Table 1. Advantages and disadvantages of the LIHC indicator

| Advantages | Disadvantages |
|--|---|
| <ul style="list-style-type: none"> •• it includes those households that spend little on energy, because, for example, they do not heat their dwelling enough to save money, or use low-quality fuel, such as wood from the forest or even rubbish, •• it excludes from the energy poor group richer households that spend a lot on energy, because they have such preferences, •• it takes into account income after housing costs, on which households often have little influence, •• as a priority group, it indicates residents of detached houses using low-quality boilers and fuels, who greatly contribute to air pollution in Poland. | <ul style="list-style-type: none"> •• it is a relative measure, which means that according to this indicator energy poverty always exists (similarly to relative income poverty), •• it limits the impact of energy price fluctuations on the situation of the energy poor. If these fluctuations affect everyone equally, they will not impact the level of energy poverty, •• it insufficiently takes into account the situation of people living in small dwellings, in particular in old tenement houses, as it ascribes more importance to the situation of people living in detached houses. |

Who is energy poor in Poland?

Energy poverty affects 12% of people in Poland. It is not identical with income poverty – almost 6% of Poles (2.1 million) are energy poor, but not income poor (Chart 1). This means that there is a large group of people who cannot meet their energy needs, even though they are above the poverty threshold. The most affected group, however, are those who are both energy and income poor at the same time – 2.5 million people (6.6%).

Chart 1. Energy poverty vs income poverty



Note: income poverty threshold defined as 60% of the median of equivalent income in the population.
Source: Own calculations based on data from PHBS 2016.

People affected by energy poverty usually live in villages and small towns. Every fifth person living in the countryside is energy poor and this group constitutes two-thirds of all those affected by this problem (Charts 2 and 3).

Chart 2. Energy poverty rate, by type of region

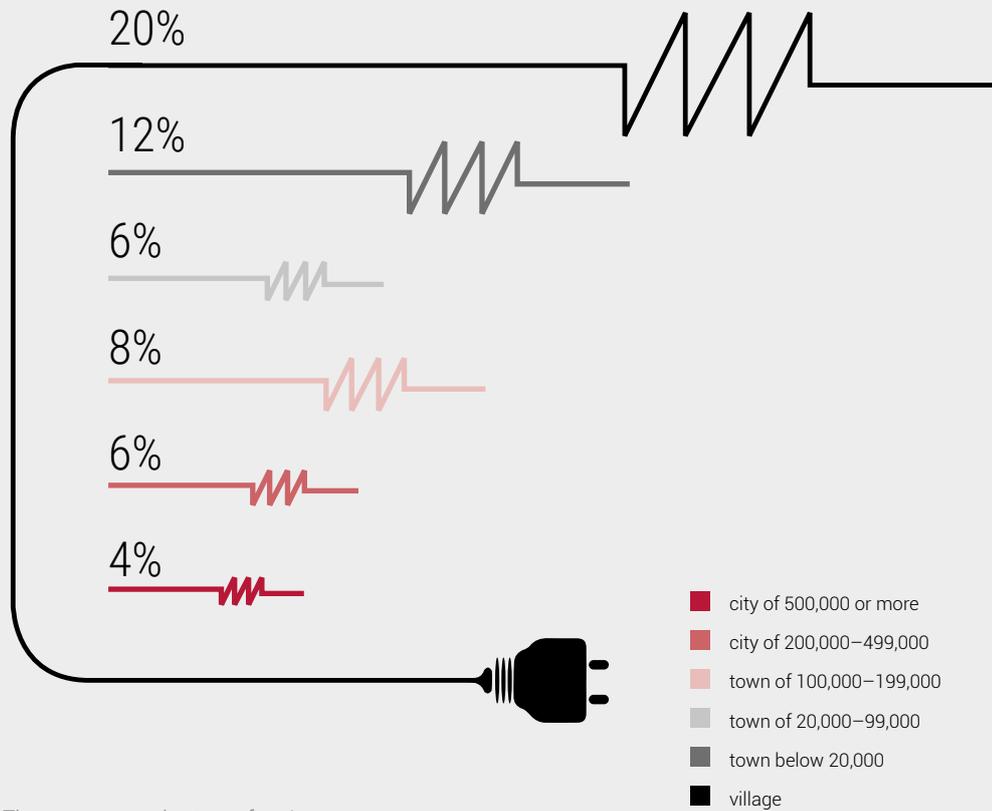
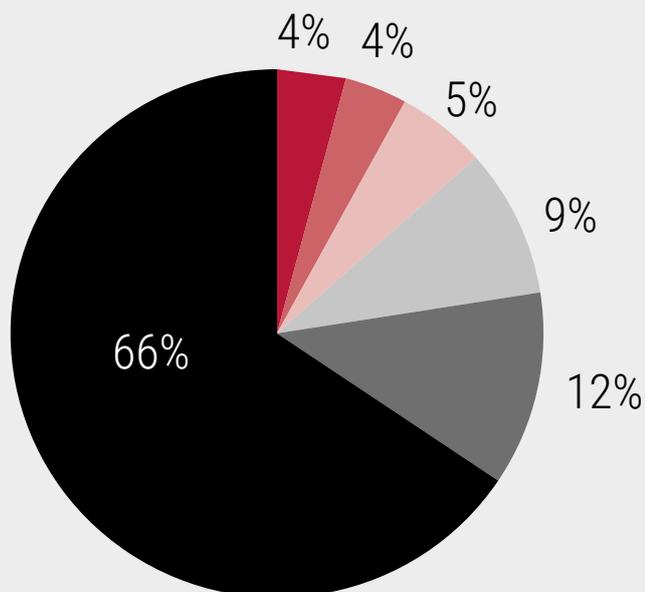


Chart 3. The energy poor, by type of region



The social group at the greatest risk of energy poverty is farmers. Every third person living of farming is energy poor, and farmers constitute almost one fifth of all the energy poor (Charts 4 and 5). Energy poverty in rural areas – i.e. affecting largely farmers – is linked to living in detached houses. The often low energy efficiency of houses (uninsulated walls and roofs, leaking windows, old boilers) and large floor areas are conducive to energy poverty. Another group largely affected by this problem are old-age and disability pensioners (in total they constitute 25% of the energy poor), i.e. older people.

Chart 4. Energy poverty rate, by socio-economic group

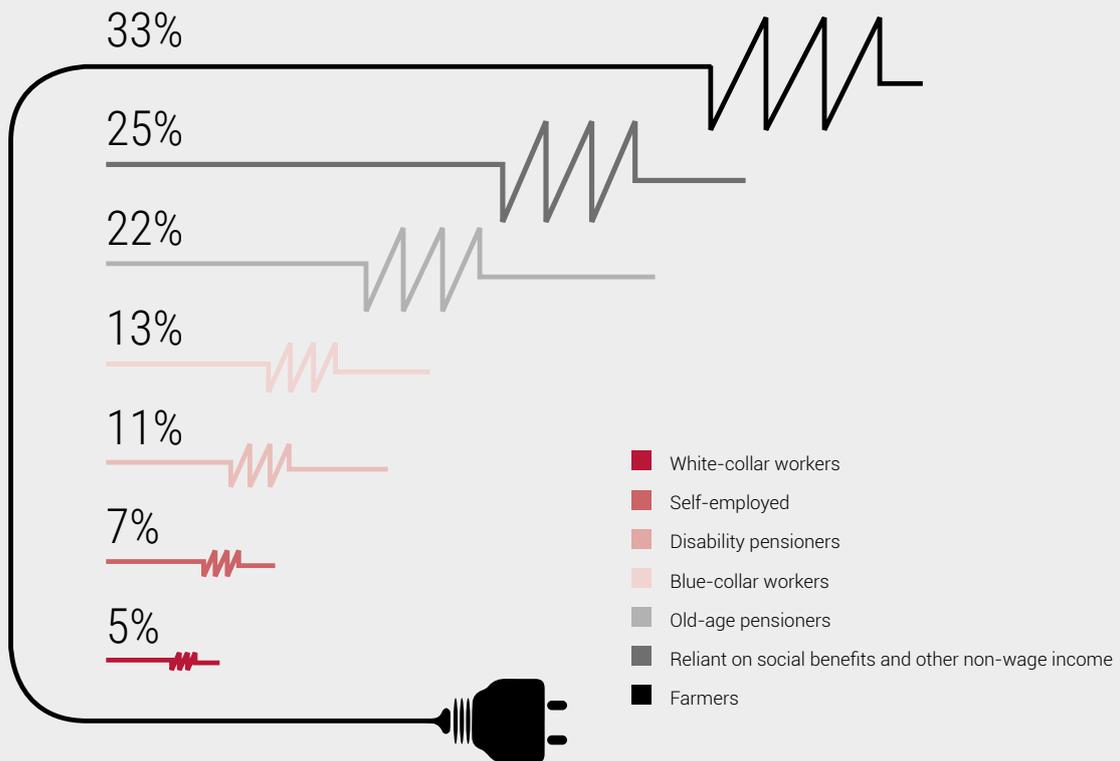
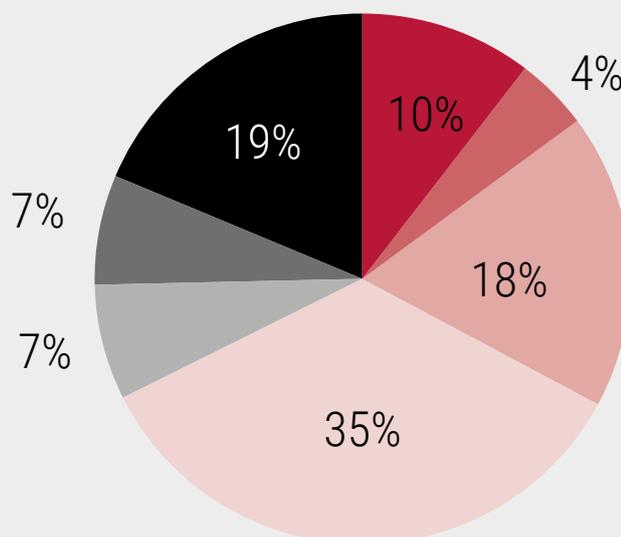


Chart 5. The energy poor, by socio-economic group



Source: Own calculations based on data from PHBS 2016.

Public policy for energy poverty

The public policy instruments currently used in Poland are insufficient to reduce the level of energy poverty, as the Polish system lacks instruments designed directly for this purpose. Meanwhile, in many European Union countries specific actions are taken to counteract energy poverty. The instruments used can be divided into three categories, according to the way they affect energy poverty: alleviation of symptoms, removal of causes, and prevention (Table 2).

Alleviation of symptoms. Where the elimination of energy poverty in a short time is too costly, alleviation measures can be applied, which include primarily:

- .. **benefits,**
- .. **social tariff,**
- .. **protection against energy cut-offs.**

These instruments work in various ways. Benefits and the social tariff are aimed at reducing the burden that energy expenses put on household budgets. Protection against energy cut-offs secures current energy consumption and helps avoid sudden deterioration of the life situation of the energy poor.

Removal of causes. Instruments that enable the elimination of the causes of energy poverty are critical for solving the problem. The following activities help achieve this goal:

- .. **Energy counselling and shaping behaviours** contribute to the removal of behavioural causes of energy poverty resulting from the lack of knowledge about the correct and efficient use of energy.
 - .. **Thermal retrofit of residential buildings** is a solution to energy poverty resulting from the poor technical condition of the building. It helps protect the building against heat loss, reduce demand for energy and its consumption.
 - .. **Energy-saving improvements in households** consist in the change of energy-inefficient elements of household appliances, which often contribute to problems with meeting energy needs. This group of activities includes, for example, installing thermostats, changing light-bulbs, replacing an old refrigerator with a new energy-efficient one.
-

Prevention. Long-term preventive measures contribute to reduced risk of energy poverty, even though they are not targeted directly at households at risk of energy poverty. They are primarily:

- .. **financial incentives to undertake thermal retrofit of buildings**, i.e. preferential loans and tax reliefs, which help improve the quality of the residential building stock,
 - .. **development of the heating network**, which increases the residents' access to a relatively cheap source of heat.
-

Table 2. Instruments for counteracting energy poverty used in Europe and Poland

| | Types of instruments | Instruments in Poland (nationwide) |
|-------------------------|------------------------------------|---|
| Alleviation of symptoms | Benefits | Targeted fuel allowance, energy allowance, housing allowance, energy lump sum |
| | Social tariff | – |
| | Protection against energy cut-offs | – |
| Removal of causes | Counselling and shaping behaviours | Energy consulting by the National Fund for Environmental Protection (NFEP) |
| | Energy-saving improvements | – |
| | Thermal-retrofit investments | Revitalization |
| Prevention | Preferential loans | BGK thermal retrofit bonus |
| | Tax reliefs for thermal retrofit | – |
| | Development of the heating network | Revitalization |

Instruments currently used in Poland

The currently used instruments do not solve the problem of energy poverty. The social policy, housing and environmental protection instruments currently being implemented in Poland reach families affected by energy poverty only to a small extent; this is particularly true for families living in detached houses or whose incomes are slightly above the official poverty threshold. According to the LIHC criterion, these families often experience energy poverty.

There are various reasons for which each of the current instruments does not reach some of the energy poor families:

- .. **Housing and energy allowances** use the criterion of maximum floor area per person, which excludes most residents of detached houses.
- .. **Energy lump sum** is awarded to war veterans, and thus only a specific group of recipients can benefit from it.
- .. **Targeted fuel allowance** is provided to those who meet the restrictive income criterion defined by social assistance, which excludes the energy poor households with slightly higher incomes⁴.
- .. **Energy counselling services provided by the NFEP** are mainly addressed to local government units, therefore they do not provide real support for individual households.
- .. **Revitalization** is a mechanism with a large potential in preventing energy poverty and removing its causes through thermal retrofit of residential buildings. At the same time, revitalization activities work better in cities than in the countryside, where dispersed development makes it difficult to identify problem areas and undertake revitalization.
- .. **The BGK thermal retrofit bonus** is an effective instrument that prevents energy poverty by improving the residential building stock. However, because of the requirement of a costly energy audit and investment credits this mechanism is unattractive for residents of detached houses. In this type of real estate, the costs of meeting the formal requirements often exceed the benefits of obtaining the bonus.

⁴ Some municipalities have adopted resolutions extending the group of beneficiaries of the fuel allowance (see Box 3).

New instruments to reduce energy poverty in Poland

We propose three new solutions:

- .. **fuel allowance targeted** at energy poor households,
- .. **energy advisory services and energy-saving improvements**,
- .. **thermal retrofit** coupled with professional energy counselling.

The proposed instruments work differently: energy advisory services and energy-saving improvements as well as energy counselling and thermal retrofit are aimed at removing the causes of the problem, whereas the targeted fuel allowance helps alleviate its symptoms. The implementation of the proposed solutions is also different. While energy advisory and energy-saving improvements are bottom-up activities, thermal retrofit and allowances are of an administrative nature⁵. None of the instruments we propose will be able to solve the problem alone. The diverse situation of the households affected by energy poverty requires different remedies. The proposed instruments will provide support especially for residents of detached houses. This group has so far been deprived of ad hoc support in meeting energy needs, and has as well been neglected when granting more comprehensive assistance, which would permanently improve the quality of buildings. The proposed solutions also help to equip families affected by energy poverty with knowledge necessary for efficient use of energy.

In order to significantly reduce the scale of energy poverty in Poland, new, more effective, and better addressed public policy instruments are needed

•• Fuel allowance targeted at energy poor families

We propose improving the mechanism of the targeted fuel allowance defined in the Social Assistance Act. The modification will make it possible to direct the allowance to the group of energy poor households. After the change, the fuel allowance would be granted during the heating season to cover part of the heating costs for households whose budgets are particularly burdened with heating costs, which are disproportionate to their income, due to the parameters of the building they live in. This requires several modifications of the current method of granting fuel allowances.

The proposed modifications of the fuel allowance:

- .. An increase of income criterion comparing with the standard criterion of eligibility for Social Assistance. This will enable providing support to energy poor households that are not income-poor.
- .. Introduction of a criterion regarding the condition of the building – aid should be directed to people living in uninsulated houses.
- .. Making the level of the granted support contingent upon income and variables affecting heating costs (e.g. floor area, type of heating).

•• Energy advisory services and energy-saving improvements

This instrument is based on the work of trained energy advisers⁶, who visit people qualified to benefit from the programme and teach them the proper behaviours that support efficient energy use, and also inform them about the possibilities of obtaining wider support.

⁵ You can read more about the methods of implementing individual instruments in Section 3 "From concept to implementation".

⁶ After proper training, social workers or selected members of a local community can play the role of energy advisers. In some countries there are also labour market activation programmes under which the unemployed become energy consultants (Box 2).

The provided advice should include, in particular, areas such as:

- proper operation of heating devices, as a result of which they are used efficiently and pollution emissions are minimized,
- proper ventilation of rooms,
- energy savings that can be obtained in a particular house by, for example, sealing windows, replacing light bulbs, replacing an old refrigerator⁷, saving hot water by installing tap aerators,
- information about potential investment support programmes (thermal retrofit) or current support programmes (targeted fuel allowances) and specific steps that a household should take to be able to receive them.

A potential refinement of this instrument is financing small improvements dedicated to households which help improve energy efficiency and which would be installed directly by advisers. These may include, among others, the installation of energy-saving light bulbs, tap aerators, time-regulated power switches, thermostatic heads on radiators, as well as simple room thermometers that will facilitate temperature control in the rooms. An example of combining energy advisory with small improvements is the German *Stromspar-Check* programme implemented by Caritas (Box 2).

BOX 2. STROMSPAR-CHECK – GERMAN PROGRAMME FOR ENERGY ADVISORY AND SMALL IMPROVEMENTS TO SAVE ENERGY

The *Stromspar-Check* programme is implemented by the German Caritas with the support of public funds. The aim of the programme is to reduce the costs of energy consumption and CO₂ emissions in poor households.

This can be achieved thanks to providing these households with free energy advisory carried out during two visits to the beneficiary's house. Knowledge transfer is accompanied by specific actions to help save energy. During the second visit, the advisor installs the most necessary energy-efficient improvements and hands in a 150 euro voucher for replacing the outdated refrigerator. One year after the first visit, the advisor visits the household for the third time to check the level of savings achieved and to give additional advice.

The programme is implemented in cooperation with the German labour offices, which makes it possible to employ the long-term unemployed as advisors. They are being prepared to act as advisors during 100 hours of training, which include both technical knowledge and communication competence training.

Source: Own study based on: www.stromspar-check.de.

⁷ The fridge belongs to the most energy-consuming devices in a household.

•• Thermal retrofit coupled with professional energy counselling

The core of this instrument is both financing and implementing the insulation and modernization of the heating installation in buildings where the energy poor live. This should be carried out in two stages: first, households receive free technical support from a professional energy counsellor, while the second step is the actual thermal retrofit.

The task of the counsellors is first of all to assess the technical condition of the building. In the next step, the counsellors would support the beneficiary in planning thermal retrofit works within the available funds. They would also help the beneficiaries to complete all formal procedures related to the provided support.

The professional energy counselling, accompanying thermal retrofit, should be provided by people with appropriate education and knowledge in the field of construction and energy efficiency, which distinguishes it from energy advisory in the field of energy-saving behaviours described in the previous section.

Professional energy counselling is an important element of support for two reasons. First of all, thanks to the involvement of the counsellors, public funds will be spent more effectively. Secondly, the counselling will help remove any possible barriers in using this instrument resulting from insufficient knowledge of the residents.

After the preparatory stage, thermal retrofit would be carried out. The burden of commissioning works to a construction company should rest on the municipality. As in the case of counselling, the key to the effectiveness of this instrument is to relieve the beneficiaries from obligations that may go beyond their competences.

Efficiency of the proposed instruments

The initial assessment of the efficiency of the proposed instruments indicates that thermal retrofit is the tool that most effectively solves the problem of energy poverty, but is also the most expensive one. Targeted fuel allowances are slightly cheaper, but they do not guarantee a permanent solution to the problem. Energy advisory services and energy-saving improvements are the most financially beneficial instrument, however they have a limited impact on the household's situation.



Thermal retrofit is the most expensive, but also the most effective tool

We have assessed efficiency taking into account three criteria:

unit cost

resources necessary to help one household,

effectiveness

to what extent the situation of a given household will improve as a result of obtaining a given type of support,

targeting efficiency

the extent to which a given instrument covers the target group, i.e. energy poor households, according to the LIHC indicator.

Below we carry out a qualitative assessment of the efficiency of the proposed instruments, the summary of which is presented in Table 3.

Table 3. Assessment of the efficiency of the proposed instruments

| Instrument | Cost | Effectiveness | Targeting efficiency |
|---|---------|---------------|----------------------|
| Energy advisory services and energy-saving improvements | low | average | low |
| Fuel allowance targeted at energy poor families | average | average | average |
| Thermal retrofit coupled with professional counselling | high | high | high |

- .. **Fuel allowance targeted at energy poor families** is an expensive instrument. However, its cost is lower than the cost of thermal retrofit. Moreover, its costs are spread over time. The effectiveness of the allowance depends on the amount granted. It can contribute to a significant improvement in meeting energy needs, provided that it is adequately high. Yet, the effect of this instrument is not permanent: once the support stops, the household will be at risk of energy poverty again. Therefore, we assess the efficiency of the fuel allowance as moderate. This instrument can be relatively well targeted based on information on income and dwelling characteristics provided by the applying households. However, targeting efficiency in this case is somewhat lower than in the case of thermal retrofit, as in the latter case eligibility is determined by professional energy counsellors.
- .. The unit cost of **energy advisory services and energy-saving improvements** is a one-off and relatively low. However, the effectiveness of this instrument is moderate. It may help make the satisfying of energy needs slightly cheaper, but in many cases, for a significant reduction of energy costs, thermal retrofit is necessary to achieve a thorough improvement of the quality of the inhabited building. The advantage of this instrument is that it creates an opportunity for the energy poor to meet in person with people who are familiar with energy efficiency and the available support programmes. The efficiency of targeting is relatively low. In practice, determining whether a household is energy poor based on the Low Income - High Costs indicator is complicated, because the hypothetical costs of a sufficient level of meeting energy needs must be defined. A simpler solution is directing the instrument to a wider group of beneficiaries, even if some of them do not belong to the target group.⁸
- .. **Thermal retrofit** is an expensive, one-off investment, and the accompanying professional counselling additionally increases the amount of necessary expenditures. These expenditures, however, translate into the effectiveness of solving the problem of energy poverty. People living in insulated buildings with modern heating installation usually do not permanently bear high energy costs. The targeting efficiency of this instrument should also be rated highly – employing professional counsellors guarantees detailed verification of the income and housing situation of the potential beneficiaries.

⁸ The difficulty of effectively targeting this type of advisory services stems from the fact that this instrument is not of an administrative nature. The involvement of local NGOs in the implementation of this instrument excludes the restrictive selection of beneficiaries, which requires having administrative and personal data about the situation of the household. More about the identification of beneficiaries in Section 3: „From concept to implementation“.

From concept to implementation

Counteracting energy poverty in Poland requires an initiative on the part of the central government administration⁹ in particular, the provision of an institutional and financial framework to help local governments assess the technical condition of buildings, provide energy counselling services, as well as plan and implement thermal retrofit projects.

Municipal social assistance centres conduct interviews with clients and have the best knowledge of the socio-economic situation in the municipality, including the number of household members who are the clients of social assistance centres, their age, and income. However, this knowledge is not enough to assess the scale of energy poverty. Therefore, it is necessary to extend it with data on the age of the residential buildings, their heating sources, and implemented energy efficiency projects.

The existing support programmes need to be strengthened, otherwise the impetus from the central level will not be effective. The main one is the energy counselling programme implemented by the Voivodship Funds for Environmental Protection (VFEP). The activities carried out under this programme are aimed at a wide range of beneficiaries. However, the resources available to individual energy counselling points are not sufficient to implement the proposed instruments in all municipalities, due to high costs and the required competences. At the same time, the interest of municipalities in solving this problem will be low, if the extension of the energy counselling offer is not accompanied by a financial support scheme, in particular for thermal retrofit.

It is desirable that the municipality monitors and evaluates the effects of projects aimed at reducing the scale of energy poverty. This will allow for possible adjustments of the instruments used in order to improve their efficiency. Where the tasks are carried out by tender (e.g. thermal retrofit), it is also necessary to control the quality of the works performed.

**Local governments
need to collect
additional information
to identify energy poor
households**

How to identify energy poor households?

The starting point for identification of these households is the criterion of low income combined with high costs (LIHC). In practice, the available information is usually insufficient to determine who needs assistance and what kind of assistance. For the municipalities, in order to successfully solve this problem, it is necessary to build the information network involving social assistance system. This means an improvement in the cooperation between social assistance centres and social economy entities, non-governmental organizations, professional associations, churches, etc., as well as the exchange of information and coordination of activities between them. It is also important for the social assistance centres to cooperate with other public entities, such as municipal police, health centres, etc. It is particularly important that social assistance centres have full information about the condition of buildings in the municipality. Interviews with the residents of buildings in the worst condition can be a valuable supplement to the social assistance centres' knowledge about new potential clients.

**Identifying
energy poor households
is a major challenge facing
local governments**

⁹ The Ministry of Energy is now responsible for such measures.

Data on the income and condition of buildings will help to precisely direct the proposed instruments to the beneficiaries. Allowances and thermal retrofit are targeted on the basis of criteria similar to the LIHC - information on the income and the condition of a building helps assess the level of the necessary energy expenditure, while energy counselling and improvements are targeted at households that are highly probably energy poor.

Developing and popularizing tools for the self-identification of the energy poor will help municipalities in the fight against energy poverty. The social assistance calculators, already existing in some municipalities (e.g. the Housing Allowance Calculator) need to be modified by adding questions about the technical condition of buildings (age, last thermal retrofit, heating source). Using these tools reduces costs and facilitates the initial selection of energy poor households.

To identify energy poor households, it is necessary to obtain information about their income and condition of buildings.

Possible solutions:

| | | |
|---|--|---|
| Assessment of the energy efficiency of dwellings by professional energy counsellors | Cooperation of social assistance centres with other institutions | Self-identification of the energy poor households |
|---|--|---|

Implementation of the proposed instruments

The implementation of the proposed instruments requires an initiative of the municipality¹⁰. It is necessary to obtain additional information on housing conditions in order to identify the households that need support, to establish a form of assistance for these households, to create technical competences necessary for energy advisory services, and finally to monitor the effects of the programme. Below are the main steps that are necessary for the implementation of each of the three proposed instruments.



INFORMATION ON HOUSING CONDITIONS IS NECESSARY TO EFFECTIVELY TARGET THE FUEL ALLOWANCE

Modification of the targeted fuel allowance may be introduced by virtue of a resolution adopted by the municipal council. An example of a municipality that introduced a modification of the fuel allowance is Kraków (Box 3). In order to modify the targeted fuel allowance, the municipality has to collect data on the condition of residential buildings, adopt eligibility criteria for the allowance, and determine its amount.

Data on the condition of the building. Municipalities have data on residents in a difficult socio-economic situation. However, in order to target the targeted fuel allowances effectively, additional information is needed. In particular, information about the age of the building, the source of heating, and whether thermal retrofit was carried out, and if so – when. Acquiring this information takes place on a small scale during individual interviews conducted by social workers. A possible solution is to conduct these types of interviews systematically and on a larger scale, as well as to use alternative data sources, such as spatial or geographical information systems.

¹⁰ The activities of a municipality aimed at energy poverty reduction may be included in the Municipal Revitalization Programme and also in a Low-Carbon Economy Programme.

Eligibility criteria. Support should be provided to those households that cannot meet their energy needs due to low income and poor housing conditions. The age and health of household members can be an additional criterion. Small children, the elderly, and chronically ill usually need more thermal comfort. Clearly formulated and publicly available criteria for providing financial assistance help avoid tensions in the local community related to inclusion in or exclusion from the target group.

The amount of the allowance. The municipality may decide to pay allowances in varying amounts depending on the household situation. For example, a higher allowance may be granted to low-income households using green (thus more expensive) fuels and to families with children, elderly, or chronically ill members. The allowance may also be raised in the case of buildings with large areas (up to a certain level).

BOX 3. LOCAL AID PROGRAMME – KRAKÓW (2014–2022)

The programme is implemented pursuant to a resolution of the City Council of Kraków by the City Social Assistance Centre in cooperation with the Environmental Development Department of the City Authorities of Kraków in the Municipality of Kraków.

The aim of the programme is to support a group of thermal energy consumers, incurring increased heating costs resulting from a permanent change of the heating system to a pro-ecological one.

Modification of the targeted fuel allowance consists in a 4.5- or 5-fold increase in the income cap entitling people to the allowance. It is granted for a defined period, depending on the income per person in a household (distinguishing between single and multi-person households) per 1 m² of the dwelling with the upper limit and taking into account the fixed amount for each type of fuel.

Source: Own study based on a Resolution of the City Council of Kraków.



ENERGY ADVISORY SERVICES AND ENERGY-SAVING IMPROVEMENTS REQUIRE A BOTTOM-UP INITIATIVE

The introduction of energy advisory and improvements covers four consecutive actions: grassroots initiative of local organizations, selection of households covered by assistance, selection of the type and scope of improvements, and training of persons introducing improvements.

A bottom-up initiative. The involvement of local organizations is a condition for energy advisory and related energy improvements. The foreign examples discussed earlier show that it is desirable to involve non-governmental organizations or social economy entities in developing effective forms of assistance. These organizations, knowing the local situation, are often able to accurately address the specific needs of households affected by energy poverty. The municipality can support activities in this process and participate in financing them. Also utility companies or private energy companies responsible for providing heat and electricity may participate in the implementation of improvements.

Selection of households. Selection is carried out by the organizations that create the initiative in cooperation with the authorities of the municipality. A simple criterion may be based, for example, on a selected location (district, housing estate, particular street) or age (seniors). What is useful is using strategic documents of the municipality (e.g. revitalization programmes) indicating specific problems in the municipality and the affected households.

Selection of the type and scope of improvements. This choice depends on the technical competence and financial resources of the entities providing energy advisory and implementing energy-saving improvements.

Training of advisors. The aim of the training is to provide future advisors with the knowledge and skills necessary to provide technical assistance to energy poor households. Its participants should gain knowledge about the available forms of assistance and effective use of energy at home, as well as be able to introduce energy-saving improvements. Local organizations involved in solving the problem can train the advisors, who can then serve as volunteers or work for a fee. They can be chosen from the employees of organizations that initiate activities or from the employees of social assistance organizations. In some countries, the training of advisors is part of an occupational development programme (Box 2).



IN ORDER TO CARRY OUT THERMAL RETROFIT, MUNICIPALITIES NEED TO EMPLOY PROFESSIONAL ENERGY COUNSELLORS

Thermal retrofit, similarly to an allowance, requires collecting data on the condition of residential buildings and selecting the criteria entitling households to receive support. Moreover, it is necessary for the municipality to employ professional energy counsellors.

The professional energy counsellors will be responsible for:

- .. assessment as to whether a household is actually at risk of high heating costs and whether the condition of the building allows for thermal retrofit;
- .. supporting the municipality in the selection of households in which thermal retrofit of the building is a priority;
- .. supporting the beneficiaries in choosing the right form of thermal retrofit, e.g. insulation of partitions, replacement of window frames, modernization or installation of a central heating system, modernization of the hot water installation, and estimation of its approximate cost.

The thermal retrofit itself should be carried out by specialized companies selected by tender.

Conclusions and policy implications

Energy poverty is a significant problem in Poland, especially in rural areas. The problem is particularly acute given the recently introduced measures to fight air pollution. Energy poor households contribute to air pollution, because they cannot afford environmentally friendly energy sources. Addressing energy poverty is hence a challenge for public policy. Policies to reduce income-poverty not necessarily reduce energy poverty. Policy instruments currently used in Poland do little to reduce energy poverty because they were not designed for this purpose. As a consequence, a significant number of energy poor families do not receive any support.

New, more ambitious policy is needed to reduce energy poverty in Poland. Such policy needs to address the following five points:

1

DEFINING THE PROBLEM.

Energy poverty has already been recognized as a social problem in Poland. However, a much more in-depth recognition of its nature is needed. We present a definition of energy poverty, and then we show that it is different from income poverty. Using the „Low Income - High Costs” indicator, we present estimates of the magnitude of energy poverty and show its socio-economic profile.

2

ESTABLISHING AN INSTITUTIONAL STRUCTURE FOR COUNTERACTING ENERGY POVERTY.

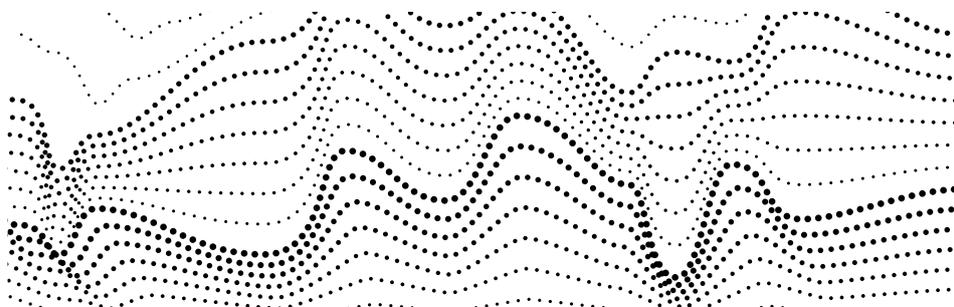
It is necessary to determine agencies that will be responsible for the implementation of measures to reduce energy policy, and the scope of their responsibilities. The central government is to play an initiating and coordinating part. The local government is to play the implementation part. Within the local government Social Assistance Centres will play the leading part in identifying energy poor households, and providing them with support.

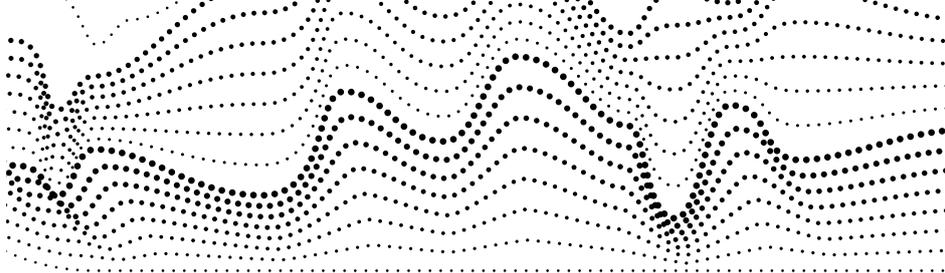
3

DEVELOPING OF A MECHANISM FOR THE IDENTIFICATION OF ENERGY POOR HOUSEHOLDS.

Determining whether a household is energy poor, besides information about its income, requires information about the energy efficiency of buildings and the sources of heating. We recommend that the municipalities obtain this information by:

- .. building information networks involving Social Assistance Centres and other agencies that have information on household incomes and housing conditions,
- .. improving the current self-identification mechanism for poor families,
- .. assessing the energy efficiency of houses by professional energy counsellors.





4

CHOICE OF INSTRUMENTS.

The key challenge is to choose the most effective ways to address energy poverty given its characteristics (concentration in rural areas). There is a number of options to choose from. We propose three new instruments based on a review of the tools used in the EU countries, and on the assessment of instruments used currently in Poland. The proposed instruments are intended to remove the underlying causes of energy poverty (low energy efficiency of houses), and to alleviate its symptoms (high cost of energy relative to household income). The latter role is played by the fuel allowance, whereas the former by the energy-saving improvements and thermal retrofit.

Targeted fuel allowance

a modification of the existing benefit

Eligibility income threshold is raised and the criterion of low energy efficiency of the house is added. The instrument is easy to implement but is costly and its effectiveness in addressing energy poverty is limited.

Advisory services and energy-saving improvements

The objectives is to help households save energy and thus reduce its cost. To this end energy advisers teach household members how to use energy efficiently, and install small improvements. This instrument is cheaper than thermal retrofit, but its effectiveness is lower.

Thermal retrofit

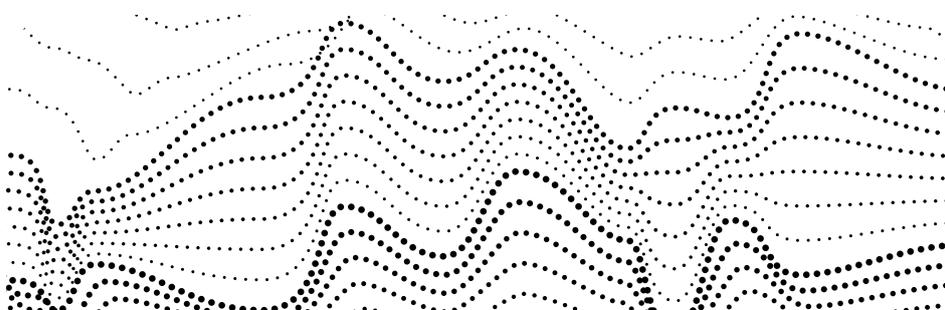
preceded by professional counselling

Thermal retrofit protects the building against heat loss and reduces consumption of energy. It must be preceded by professional energy counseling. This instrument is the most expensive, but the most effective.

5

IMPLEMENTATION.

The implementation of the proposed instruments will impose an additional burden on local governments, especially on Social Assistance Centres. Local governments will be responsible for the identification of the energy poor households, which is a complicated task, involving the collection of additional and not easily available information on households. To meet these new responsibilities local governments will need additional resources, both human and financial. This will add to the cost of the policy, over and above the direct cost of a particular instrument. The policy to combat energy poverty is costly and thus cannot be fully financed by the local government. It needs to be co-financed by the central budget and also the EU funds.



Research of the Institute for Structural Research on energy poverty

Energy poverty has been studied by experts from the Institute for Structural Research since 2015. We have developed and adapted to Polish conditions measures of energy poverty applied in the European Union. We work on improving the measurement methodology, conduct research on the group affected by energy poverty and present proposals for its reduction. The results of our research are described in several publications and have been presented during scientific conferences and seminars. We publish descriptions of our activity on the following website: WWW.IBS.ORG.PL/EN/RESEARCH/ENERGY-POVERTY/.

IBS publications

(from the most recent to the oldest)

1. Sałach, K., Lewandowski, P. (2018). Pomiar ubóstwa energetycznego na podstawie danych BBGD – metodologia i zastosowanie. *IBS Research Report 01/2018*.
2. Sałach, K., Lewandowski, P. (2018). Energy poverty in Poland, 2012-2016. Description and changes over time. *IBS Brief Report*.
3. Lis, M., Miazga, A., Sałach, K., Świącicka, K., Szpor, A. (2017). Ubóstwo energetyczne w Polsce – diagnoza i rekomendacje. *IBS Policy Brief*.
4. Szpor, A., Lis, M. (2016). Ograniczenie ubóstwa energetycznego w Polsce – od teorii do praktyki. *IBS Policy Paper 06/2016*.
5. Lis, M., Miazga, A., Sałach, K. (2016). Location, location, location. What accounts for regional variation of fuel poverty in Poland? *IBS Working Paper 09/2016*.
6. Lis, M., Sałach, K., Świącicka, K. (2016). Heterogeneity of the fuel poor in Poland – quantification and policy implications. *IBS Working Paper 08/2016*.
7. Lis, M., Miazga, A., Ramsza, M. (2016). Dynamiczne własności miar ubóstwa energetycznego. *IBS Research Report*.
8. Szpor, A. (2016). Energy poverty in Poland – buzzword or a real problem? *IBS Policy Paper 02/2016*.
9. Miazga, A., Owczarek, D. (2015). It's cold inside – energy poverty in Poland. *IBS Working Paper 16/2015*.
10. Lis, M., Miazga, A. (2015). Who will be affected by rising energy prices? Map of energy expenditures of Poles. *IBS Working Paper 11/2015*.

Research on energy poverty in Poland

Research or advocacy activities aimed at reducing energy poverty in Poland have been also conducted, among others, by: the Institute for Sustainable Development Foundation (ISD) (Fundacja Instytut na Rzecz Ekorozwoju), Polish Foundation for Energy Efficiency (FEWE) (Fundacja na rzecz Efektywnego Wykorzystania Energii), Habitat for Humanity Poland, Chamber of Commerce for Polish Coal Sellers (IGSPW) (Izba Gospodarcza Sprzedawców Polskiego Węgla), Institute of Public Affairs (IPA) (Instytut Spraw Publicznych), Energy Regulatory Office (ERO) (Urząd Regulacji Energetyki).

Selected publications

1. Bouzarovski, S., Herrero, S.T., Petrova, S., Frankowski, J., Matousek, R., Maltby, T. (2017). Multiple transformations: the emergence of post-communist energy vulnerability as a socio-spatial formation. *Geografiska Annaler: Series B, Human Geography* 99(1), 20-41.
2. Figaszewska, I. (2009). Ubóstwo energetyczne – co to jest? *Biuletyn Urzędu Regulacji Energetyki* – 5/2009.
3. Kurowski, P. (2012). Zagrożenie ubóstwem energetycznym. Próba ustalenia zjawiska (na podstawie danych GUS), *Biuletyn Urzędu Regulacji Energii*, No. 79.
4. Libor, G. (2017). Ubóstwo energetyczne a rozwój technologiczny, [in:] Nowalska-Kapuścik D. [ed.], *Technologia jako inspiracja dla interdyscyplinarnych badań naukowych*, Wydawnictwo internetowe e-bookowo.
5. Owczarek, D., Miazga, A. (2015). *Ubóstwo energetyczne w Polsce – definicja i charakterystyka społeczna grupy*. Fundacja Instytut na Rzecz Ekorozwoju.
6. Pyka, M., Liszka, S., Czajkowski, J., Kukla, M. (2014). *Ubóstwo energetyczne. Wyniki badania ankietowego oraz propozycje dotyczące pomocy osobom ubogim energetycznie*. Fundacja Instytut na Rzecz Ekorozwoju.
7. Stępnia, A., Tomaszewska-Kula, A. (2013). *Ubóstwo energetyczne a efektywność energetyczna. Analiza problemu i rekomendacje*. Fundacja Instytut na rzecz Ekorozwoju.
8. Szamrej-Baran, I. (2016). Ranking krajów UE ze względu na ubóstwo energetyczne. *Gospodarka w praktyce i teorii*, vol. 43.
9. Węglarz, A., Kubalski, G., Owczarek, D. (2014). *Propozycje mechanizmów wsparcia procesu przeciwdziałania zjawisku ubóstwa energetycznego w Polsce*. Fundacja Instytut na Rzecz Ekorozwoju.

Jan Rutkowski

Institute for Structural Research (IBS)
e-mail: jan.rutkowski@ibs.org.pl

Katarzyna Sałach

Institute for Structural Research (IBS)
University of Warsaw, Faculty of Economic Sciences
e-mail: katarzyna.salach@ibs.org.pl

Aleksander Szpor

Institute for Structural Research (IBS)
e-mail: aleksander.szpor@ibs.org.pl

Konstancja Ziółkowska

Institute for Structural Research (IBS)
e-mail: konstancja.ziolkowska@ibs.org.pl

IBS Policy Paper series

The IBS Policy Paper series makes economic research findings accessible in order to enhance public debate.

Series editor – Jan Rutkowski

IBS Policy Paper 1/2018

ISSN: 2451-4365

Translation – Urszula Gałęcka-Sobiech

Technical editor – Agata Miazga

Design  RZECZYOBRAZKOWE

Additional information

Project funded by the European Climate Foundation.

Own study based on data from the Polish Household Budget Survey 2012–2016 by the Central Statistical Office. The Central Statistical Office is not liable for the data and conclusions presented in the publication.

The content of this publication presents the opinions of the authors, which may diverge from the position of the Institute for Structural Research. The usual disclaimers apply.

About Institute for Structural Research (IBS)

The Institute for Structural Research (IBS) is an independent and politically neutral research foundation. Our research studies focus on economic analysis and evaluating the consequences of public policies in the following areas: labour markets, demography, education, family policy, public finance as well as energy and climate. We rely on modern modelling, statistical, econometric and IT tools. We take great care to ensure our research is objective and based on sound methodology.

Since our foundation in 2006, we have conducted almost 200 research projects for such entities as the World Bank, OECD, various ministries, Chancelleries of the Prime Minister and President of the Republic of Poland, the National Bank of Poland, employers' organisations as well as other associations and foundations. The Institute's research findings are generally available, with two series of publications being specifically responsible for their dissemination: IBS Working Paper and IBS Policy Paper. All articles, reports and information about our projects and conferences may be found at ibs.org.pl.

e-mail: ibs@ibs.org.pl

twitter: [@ibs_warsaw](https://twitter.com/ibs_warsaw)