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## THE SOCIOLOGICAL MEASURING IN THE IMPLEMENTATION OF MEASURES OF ENERGY EFFICIENCY AND ENERGY CONSERVATION OF HOUSING FACILITIES

**Purpose.** To carry out the sociological measuring in the implementation of energy efficiency measures and energy-saving of housing facilities to improve financial arrangements of their effective implementation.

**Methodology.** Analysis of causation between the manifestations of various socioeconomic processes in the housing sector in terms of transformations in Ukraine by the method of expert assessments.

**Findings.** The causation that significantly affects the socioeconomic transformation in the housing sector has been revealed. The monitoring of processes with regard to the implementation of energy efficiency measures and energy-saving of residential buildings in Poltava region has been implemented. The prerequisites for carrying out thermomodernization of housing facilities have been defined; the population's perception of measures of energy efficiency and energy saving has been analyzed. It has been found that most of the respondents implement certain energy-saving practices in their houses. The relationship between receiving the subsidies and awareness, and the desire of introduction of energy efficiency measures has been revealed. The causes of the passivity of multi-apartment building residents in introducing measures for thermomodernization have been identified and definitely low use of energy efficiency compared with households has been observed. It has been proved that the introduction of energy efficiency measures and energy-saving of housing facilities is impossible without the well-organized and active cooperation of all interested parties – the State, local authorities, business and civil society. The lack of financial opportunities for most of the respondents and their motivation to implement thermomodernization measures has been revealed. The priority of forming the energy efficient society has been substantiated. Development of the strategy has been grounded that would clearly define the objectives, methods, ways, and mechanism for spread of knowledge regarding energy efficiency and energy saving among citizens and institutions including State and regional programs with regard to public thoughts and modern financial mechanisms and opportunities.

**Originality.** The principles of forming a reasonably efficient priority in society on the basis of the value of monitoring of socioeconomic processes regarding the implementation of energy efficiency measures and energy-saving in the Poltava region have been grounded.

**Practical value.** It lies in the fact that the proposed approach to the evaluation of energy efficiency and energy-saving activities concerning housing facilities by the population allows us to detect, identify and respond to risks and threats to national interests in the sphere of housing facilities, which will contribute to improvement of the regulatory and financial mechanisms of regional and State programs.

**Keywords:** *energy efficiency, energy saving, housing facilities, threats, energy-efficient society, sociological survey*

**Introduction.** Conducting and analyzing the social measuring in the implementation of measures of energy efficiency and energy saving of housing facilities make one of the major ways of improving the housing policy of the State, that allows responding quickly to risks and providing the effectiveness of its implementation.

The emergence of new risks and the aggravation of existing problems in the process of implementing the housing policy require a scientific substantiation of decisions, understanding, and the society's perception of the relevance of their implementation. In this regard, public opinion on energy efficiency measures and energy saving allows one to identify the reactions of the population on the transformation processes that serve as a useful information source for the effective implementation of the housing policy. The sociological measuring

of the implementation of the measures of energy efficiency and energy saving is a kind of evaluation of the effectiveness of the socioeconomic policy. The relevance of the research is conditioned by the need for systematic and timely detection, identification, prevention and neutralization of real and potential threats to the national interests in the housing sphere with the following definition of the areas of security, which are essential for people, society, and the state.

The solution of the problem of power consumption and energy saving is among the most important conditions for the socioeconomic development of the state. The constant increase in consumption levels and a shortage of its own energy resources require the use of such a provision as energy efficiency and energy savings in all areas, especially in the housing sector.

The low-quality housing facilities construction in terms of energy efficiency has led to unsustainable (inef-

efficient) consumption of energy resources and excessive expenditures on their purchase. The increase in the housing and utility payments on the background of delayed salary payments, the growth of prices, unemployment, considerable stratification of the population remain the main problems that cause our concern and need a solution. Despite the dynamics of the growth of statistical indicators, the assessment of their quality of life by the population remains low [1].

In turn, the introduction of energy saving measures and overhaul of housing facilities require significant financial investment, the payback period of which lasts from 8 to 15 years. For the period of 2015–2016, about 164 thousand loans for 2.7 billion hryvnias were issued via three State banks due to the mechanism of providing targeted loans. 1.2 billion of them was compensated from the State budget, 60 million – from local budgets [2]. According to the energy efficiency program of the Government, 432.44 million UAH was aimed at thermal insulation of private housing facilities in 2017 [3]. At the same time 206 programs to reduce the ‘warm loans’, which received additional compensation from local budgets for the payment on the principal or percentage, continued to act at various levels in all regions.

Despite the considerable potential and an additional incentive of the population to save energy in the form of rising rates, most energy efficiency projects are not being implemented because of legislative, political, financial, information, and other factors. Thereby, the main task of state support is developing financially affordable projects of thermomodernization for the owners of multi-apartment buildings and detached houses, the formation of the awareness of the population regarding energy saving.

Therefore, in the updated edition of The Energy Strategy of Ukraine for the Period until 2030, the formation of energy-efficient society, the functional task of which provides energy-saving and energy efficiency along with the formation of a new consciousness of the citizens of our State is defined as one of the priority areas [4].

#### **The analysis of the recent research and publications.**

The analysis of the scientific publications of V. Barannik [5], T. Zayats [6], D. Zerkalov [7], I. Pisarevsky, I. Korinko, O. Panasenko, O. Rudyi [8], O. Suhay, O. Kindzyura [9], T. Serdyuk, M. Topuzov, V. Chevganova [10], as well as our own research allowed us to define the methodological basis of the formation of a housing policy based on the principles of energy efficiency, which has developed guidelines for the formation of housing policy at the regional level in the housing area of focus; the influence of economic evaluation of land resources on the development of housing industry has been defined; substantiation of the need to develop regional programs providing the population with affordable and public housing [10–12].

**Unsolved aspects of the problem.** Along with this, there is an urgent need in the mechanism of the systematic and timely identification of the influence of economic factors on quality of life of the population and in the monitoring of socioeconomic processes, in particu-

lar in the implementation of measures of energy efficiency and energy-saving of housing facilities, the formation of energy-efficient society.

**Objectives of the article.** To analyze the causation between the manifestations of socioeconomic processes in the housing sector in terms of transformations in Ukraine. To carry out the sociological measuring of the implementation of energy efficiency measures and energy-saving of housing facilities. To give grounds to the directions of formation of awareness of the population on the basis of energy efficiency and energy saving.

**Description of the methodology.** To achieve the main goal, implementing a sociological measurement of the implementation of measures for energy efficiency and energy saving of the housing facilities, analysis of public opinion in the Poltava region – its objective assessment, detection and identification of threats – the method of expert assessments based on the assumption that, it is possible to build an adequate model of the future development of the object of forecast on the basis of expert opinions. Using the Delphi method to obtain information about the attitude of Ukrainian citizens towards implementation of energy efficiency and energy saving measures of the housing facilities and personal participation in these events, we conducted an expert survey to form energy-efficient awareness. Based on statistical reporting, operational data, mass media reports, citizens' complaints and other sources, effective indicators on energy efficiency and energy efficiency measures have been analyzed.

**Presentation of the main research and explanation of scientific results.** Solving problems of energy consumption of industry and energy supply of the economy is among the most important conditions for the active implementation of economic and social reforms in Ukraine. At the same time, the growth of tariffs for energy resources gradually reduces their financial availability to the majority of the population of Ukraine.

For the last decade, one of the problems in the housing sector has involved the outdatedness and accidents in housing facilities, which determines the need for major repairs and thermomodernization in order to bring it in line with the minimum requirements for energy efficiency of the building, thereby ensuring the satisfaction of human needs and creation of optimal microclimatic conditions for people's stay and residence during the expected life cycle of the building. About 65 % of residential buildings in Ukraine were built in the years of industrial construction in standard series, the construction of which at that time permitted losses due to fencing structures up to 400 kWh/ (m<sup>2</sup> per year). Significant expenditures on heat energy are also made by houses built between 1971 and 1990. According to the experts of the Ministry of Regional Development, Construction and Housing and Communal Services of Ukraine, about 90 % of all high-rise buildings require thermomodernization [12].

The main reasons for the unsatisfactory state of the housing facilities is an imperfect organizational mechanism for managing them. Thus, the maintenance of the existing housing facilities in a proper technical condi-

tion remains a serious socioeconomic problem in our state. At the same time, the proper exploitation of existing housing facilities and energy saving measures require significant financial investments by the state, local authorities and the owners of these housing facilities. The analysis of the financial capacity of the population to implement energy efficiency measures has revealed the financial failure of most citizens, due to the low level of salaries and the increase in arrears of payments, as well as the lack of awareness of personal responsibility for energy efficiency and energy saving in their homes.

According to the State Statistics Service, as of October 1, 2017, the total of unpaid wages amounted to 2467.8 million UAH, which is 5.7 % more than a month earlier. Compared with the data at the beginning of the year, the amount of arrears increased by 676.8 million UAH (37.8 %), 54.4 % of which was recorded at economically active enterprises whose indebtedness increased by 9.1 % during September 2017 [1].

In September 2017 average charge for housing and public utility services increased by 9 % (with regard to electricity at a rate of 150 kW per year) and totaled 539.4 UAH per one owner’s account. The good news is a slight decrease in the debt of the population for the consumed services at the end of September 2017, the debt was 1.5 % less than at the previous month.

The inability of the population to pay for the consumed utility services timely and fully leads to the need to protect them from the State through a tool such as subsidies which directly depends on the level of income. According to the data of the State statistics, in September 2017, 260.5 thousand families applied for a subsidy for the reimbursement of expenses for payment of utility services, which is 61.2 % less than in September last year. In general, for 9 months 2017, the number of appeals increased by 55.3 % compared to the same period the year 2016.

At the beginning of September 2017, 41.6 % of Ukrainian families received subsidy support, the average

amount of which was 149.6 UAH for one household, which is 20.3 % more than for the same period of the previous year. Thus, in 2017, about 50 billion was planned to be given to subsidies for housing and utilities and solid fuels, while only 0.8 billion (Fig. 1) [1, 2] was planned for the State support of the energy efficiency. Considering the above-mentioned, we can conclude that we need to combine the efforts of citizens and the State in the direction of energy efficiency and energy saving of housing facilities for thermomodernation of 80 % of the housing facilities of Ukraine, for heating which twice as much energy than in the EU is consumed.

Thus, the preconditions for the thermomodernization of the residential real estate include the increase in utility tariffs, low wages of the population and late payments of their wages, the growth of the population having arrears on utility bills and applying for subsidies. Among the technical problems, it is right to distinguish excessive heat losses due to the low efficiency of thermal insulation of external structures and pipelines, excessive actual air exchange in premises, loss of operational and organizational nature, overheating of premises during the transition period of the year [13]. Significant reductions in energy costs, and hence the improvement of living conditions for residents in housing facilities can only be achieved through the introduction of energy efficiency and energy saving measures in an integrated approach to the solution of the task.

The mechanisms for allocating funds to energy efficiency differ in the source and number of actors involved in the process – from their allocation by the creditor before use – mainly by donors and the MFO. We believe that state incentives for energy efficiency through banking institutions have a fairly large potential for implementing energy efficiency measures. In Ukraine, starting from the end of 2014, a program to improve the energy efficiency of the ‘Warm Credit’ homes has been implemented by the State Agency for Energy Efficiency

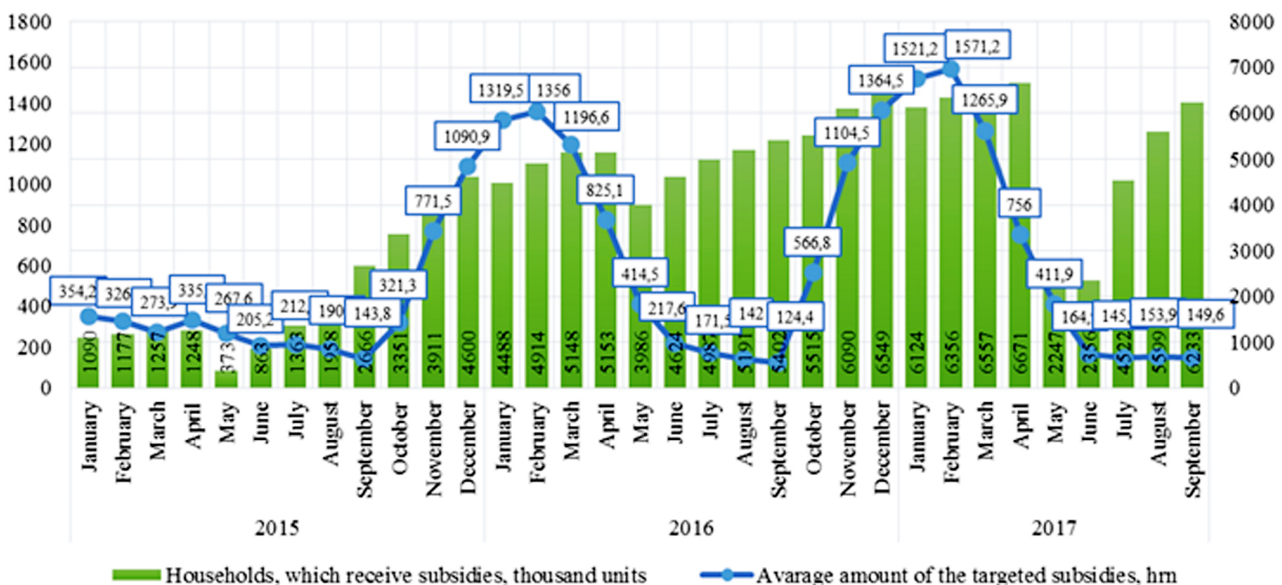


Fig. 1. The dynamics of the average amount of the targeted subsidies and the number of households that receive them



and Energy Conservation of Ukraine, the principle of which provides for compensation of a part of the cost of purchasing energy-efficient equipment and materials by the state when obtaining a loan in the state bank. Experts note the active participation of Ukraine in the Government Energy Efficiency Program in 2016 [14]. In order to meet the demand for the program, 893.8 million UAH for the reimbursement for 'warm' loans was envisaged in the state budget for 2016, which is three times the amount of 2015.

It was found that the feature of the program's functioning during the analyzed period was the use of 'warm loans' by the population living in detached houses, and only 80 million UAH, or 3 %, of the total 2.7 billion UAH of 'warm loans' was issued to residents of multi-story buildings, who are co-owners of housing facilities in the form of associations of co-owners of apartments of one building [2]. Lack of activity among residents of associations of co-owners of apartments of one building is due to difficulties in the multi-apartment building to reach a general agreement on obtaining a loan and additional monthly expenses for the payment of the principal of the loan and interest. Most residents of associations of co-owners of apartments of one building are not aware of the importance of complex modernization of the building, refuse to attract loans under any conditions, which reduces the efficiency of measures of thermomodernization of a multi-apartment building.

In turn, subsidies, and especially non-regulation of certain provisions of the mechanism of their appointment, lack of motivation to save energy, demotivate the population to implement the measures of thermomodernization; therefore, the continuation of such a policy will not promote the effectiveness of energy efficiency and energy saving policies in the housing sector.

The lack of awareness of the population and, as a result, passivity in participating in energy efficiency measures and energy saving of the housing facilities, required an expert survey and analysis of its results regarding awareness, motivation and personal responsibility for their future well-being. In this regard, we have developed a questionnaire and conducted a sociological survey of the population of the Poltava region from November, 1 to December, 1, 2017, which allowed identifying the respondents' assessment of energy efficiency and energy saving measures and determining the directions of formation of energy-efficient awareness among the citizens of our country.

The questionnaire contained two types of questions: a multiple choice format with a single answer option and with a few possible answer options. The questions were generated and published as an online questionnaire using Google Form, the link to which was personally sent to respondents from the current database by e-mail and other communication channels.

For the purpose of analyzing the results of the survey, the answers received were assessed against the age structure of the Ukrainian population, type of housing (multi-apartment, individual), ownership forms. The questionnaire provided answers to questions about the attitude of the population towards energy saving, solving

the problems associated with the energy efficiency of a housing facility, the response to increasing the number of housing and public utility services charges and subsidizing the cost of their payment, awareness of energy saving methods and investing in energy-efficient measures.

It was found that the largest share (42 %) of the respondents consists of respondents who agree on the need to pay real value for consumed housing and public utility services and implement energy-saving measures. The second place is occupied by the respondents who are more likely to agree (33.5 %), but receiving a subsidy does not consider the possibility of such measures in the coming years. If in the case of practices requiring significant investments, the situation is rather clear, then, in case of reducing electricity and gas consumption, it is harder to explain why such households are not trying to resort to this. The smallest share (7 %) in the structure of responses is made by respondents who completely disagree with the need to pay the real cost for consumed housing and public utility services and implement energy-saving measures (Fig. 2).

Dependence is found that the decrease in family income increases the number of those who consider it compulsory for state bodies to carry out measures on the energy efficiency of housing facilities. Regarding the timely payment of bills for consumed housing and public utility services, 86 % of respondents expressed their views positively, while others 14 % state that there are problems that hinder this: too high tariffs; regular increase in rent; poor quality of services or their complete absence; inaction of the authorities; failure of carry-out service to comply with deadlines and 1.5 % – do not consider it necessary to pay for public utility services.

As a result of the sociological survey, it was found that 21.5 % of the respondents did not apply any energy-saving measures, justifying their passivity by lack of financial capacity, even with state support. About 35.5 % of respondents independently installed meters and insulated the housing facilities at their own expense; 22 % – confined themselves to the registration of the subsidy. Only 11 % mentioned that they benefited from state support – they took a loan for a 'non-gas' boiler and warmed up a house (apartment).

The conducted sociological survey allowed assessing the respondents' awareness of the possibility of using

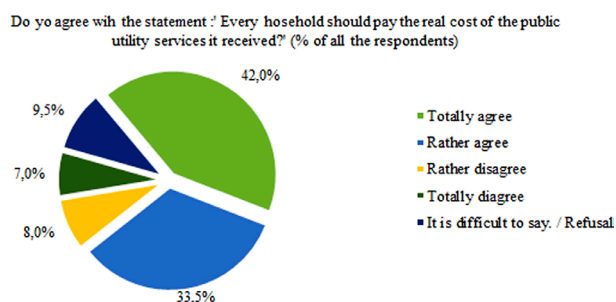


Fig. 2. The analysis of the attitude of the population towards the payment of the real value of housing and public utility services

such a financial instrument for thermomodernization, as state programs on energy efficiency and energy saving. The largest share in the structure of responses is made up of respondents who consider these programs ineffective without modernization of public utility infrastructure. Unfortunately, only 4 % of the population gave a positive assessment of the effectiveness of state programs on energy efficiency and energy saving (Fig. 3).

At the same time, more than half (60.5 %) of the respondents believe that ‘every household should independently initiate and implement energy-saving technologies in their homes without waiting for help from central or local authorities’ (Fig. 4).

At the same time, the low level of energy security of the state during 2013–2017, which is in the range of 35–43 %, indicates a critical state in this area [15] and leads to a detailed study of the directions of ensuring energy security in Ukraine. It is precisely 76.7 % of the respondents who consider that the first step is to introduce energy saving at enterprises, rather than to force the population to save. Interestingly, as a result of the survey, we found the passivity of 31.5 % of the population in implementing energy efficiency and energy saving measures.

Thus, the analysis and generalization of the results of the sociological survey allows the following conclusions to be made:

- the majority of respondents are informed and implement certain energy-saving practices in their housing facilities;

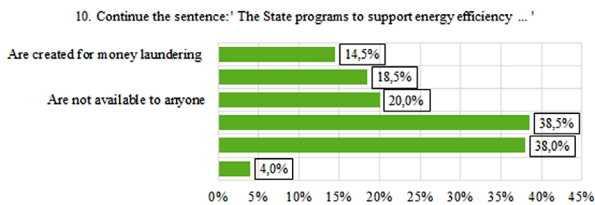


Fig. 3. The structure of respondents' answers to the question of efficiency of state programs on energy efficiency and energy saving

- the relationship between receiving the subsidy and awareness and willingness to implement energy efficiency measures is revealed;

- the causes of passivity of multi-apartment building residents in the implementation of measures for thermomodernization, which include lack of financial capacity (especially for residents of buildings built in the 1960s–1980s), unwillingness to take loans for these measures; lack of individual apartment appliances for keeping records of heat costs in buildings of old series with a vertical system of branching of heating networks, have been identified;

- the low level of application of energy efficiency programs by people of multi-apartment buildings in comparison with households is observed;

- low awareness of the population has been identified and, consequently, their unwillingness to invest in energy saving.

Thus, implementation of measures for energy efficiency and energy saving of housing facilities is impossible without the coherent and active cooperation of all interested parties – the State, local authorities, business and, above all, civil society. Raising awareness on energy efficiency measures in the housing facilities is a way of activating the society, forming its energy-efficient awareness, which requires the development of a strategy that clearly defines the goals, methods, ways, and mechanisms for spreading knowledge about energy efficiency and energy saving among citizens and institutions of the country. It is important to assess the existing advantages and disadvantages of information capabilities for these purposes.

The theme of measures for the formation of an energy-efficient society should meet the needs of the community in a specific type of knowledge. Such measures are aimed at the socially active population, as well as professionals in the financial and housing sectors. At the first stage, they will be able to become ‘guides’, ‘distributors’ of the energy-efficient way of thinking and use of European experience in this field.

In addition to traditional channels of spreading information, the principle of achieving maximum effi-

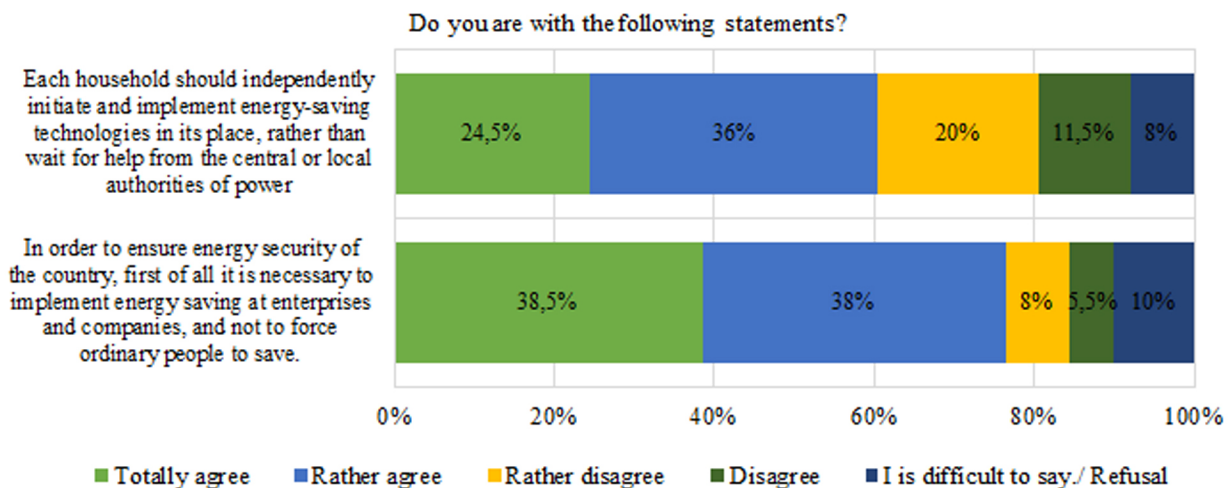


Fig. 4. Analysis of responsibility for energy saving

ciency in the awareness of citizens in the conditions of limited resources are Internet projects, games, creativity contests; public events; contests on energy saving topics, including the ones among pupils and students; contests for the best projects of regional development; conducting thematic lessons in schools. We consider it necessary to start the formation of energy-efficient awareness from childhood, cultivating conscious motivation, internal need for rational use of resources and energy.

In order to ensure the long-term results, it is necessary to implement a system of relations for raising awareness and spreading knowledge by ensuring the regular exchange of information and raising awareness of relevant training through the development of an online system; to develop teaching materials that can be used to train students; to support the activities of energy efficiency and energy efficiency centers located in the universities of the region.

**Conclusions.** Thus, an important tool in the study of the impact of economic processes on the state of social tension and the size of social protest in the period of transformations is the sociological assessment of energy efficiency and energy saving measures of the housing facilities. As a result of the sociological measuring of energy efficiency and energy saving measures of the housing facilities, the public concern about the following has been revealed: lack of financial opportunities for their implementation; insignificant amounts and breaks in the financing of the existing state energy efficiency program; absence of motivation factors of energy saving, in addition to increasing amount of utility payments; different motivation in different groups depending on the type of housing (multi-apartment, individual) and in age groups; the imperfection of the mechanism for the allocation of subsidies in terms of motivation for energy saving and the lack of self-education on energy efficiency and energy saving.

The effectiveness of measures for housing policy reform is possible provided there is a coherent and active cooperation between the State, local self-government, business and, most importantly, civil society. The formation of an energy-efficient society the functional task of which involves energy saving and energy efficiency requires the development of a strategy that clearly defines the goals, methods, ways and mechanism for spreading knowledge about energy efficiency and energy saving among citizens and institutions of the country, developing state and regional programs taking into account public opinion and modern financial mechanisms and opportunities in order to increase motivation processes both for owners of detached houses and multi-apartment building owners including subsidy recipients.

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### Соціологічний вимір упровадження заходів енергоефективності та енергозбереження житлового фонду

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**Мета.** Провести соціологічний вимір упровадження заходів енергоефективності та енергозбереження житлового фонду для вдосконалення фінансових механізмів їх ефективної реалізації.

**Методика.** Аналіз причинно-наслідкових зв'язків між проявами різних соціально-економічних процесів у житловій сфері в умовах трансформаційних перетворень в Україні методом експертних оцінок.

**Результати.** Розкриті причинно-наслідкові зв'язки, що суттєво впливають на соціально-економічні перетворення у житловій сфері. Здійснено моніторинг процесів у частині впровадження заходів енергоефективності та енергозбереження житлового фонду в Полтавському регіоні. Визначені передумови проведення термомодернізації житлової нерухомості, проаналізоване сприйняття населенням заходів з енергоефективності та енергозбереження. Установлено, що більша частина опитаних упроваджує певні практики енергозбереження у своїх житлових будинках. Виявлена залежність між отриманням субсидії та обізнаністю й бажанням упровадження заходів енергоефективності. Виявлені причини пасивності мешканців багатоквартирних будинків у впровадженні заходів із термомодернізації та констатовано низький рівень використання ними програм з енергоефективності порівняно з домогосподарствами. Доведено, що впровадження заходів енергоефективності та енергозбереження житлового фонду неможливе без злагодженої та активної співпраці всіх зацікавлених сторін: держави, органів місцевого самоврядування, бізнесу й громадянського суспільства. Виявлена відсутність фінансової можливості більшої частини опитаних і мотивації їх до здійснення заходів термомодернізації. Обґрунтована пріоритетність формування енергоефективного суспільства. Обґрунтована розробка стратегії, котра б чітко визначала цілі, методи, шляхи й механізм поширення знань стосовно енергоефективності та енергозбереження серед громадян і інституцій країни, включала державні й регіональні програми з урахуванням громадської думки й сучасних фінансових механізмів і можливостей.

**Наукова новизна.** Обґрунтована пріоритетність формування енергоефективних засад у суспільстві

на основі здійсненого моніторингу соціально-економічних процесів у частині впровадження заходів енергоефективності й енергозбереження в Полтавському регіоні.

**Практична значимість.** Полягає у тому, що запропонований підхід до оцінювання населенням заходів енергоефективності та енергозбереження житлового фонду дозволяє виявляти, ідентифікувати та оперативно реагувати на ризики й загрози національним інтересам у житловій сфері, що сприятиме вдосконаленню нормативно-правового забезпечення та фінансових механізмів державних і регіональних програм.

**Ключові слова:** енергоефективність, енергозбереження, житловий фонд, загрози, енергоефективне суспільство, соціологічне опитування

### Социологическое измерение внедрения мероприятий энергоэффективности и энергосбережения жилищного фонда

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**Цель.** Провести социологическое измерение внедрения мероприятий энергоэффективности и энергосбережения жилищного фонда для совершенствования финансовых механизмов их эффективной реализации.

**Методика.** Анализ причинно-следственных связей между проявлениями различных социально-экономических процессов в жилищной сфере в условиях трансформационных преобразований в Украине методом экспертных оценок.

**Результаты.** Раскрыты причинно-следственные связи, которые существенно влияют на социально-экономические преобразования в жилищной сфере. Осуществлен мониторинг процессов в части внедрения мероприятий энергоэффективности и энергосбережения жилищного фонда в Полтавском регионе. Определены предпосылки проведения термомодернизации жилищной недвижимости, проанализировано восприятие населением мероприятий по энергоэффективности и энергосбережению. Установлено, что большая часть опрошенных внедряет определенные практики энергосбережения в своих жилых домах. Обнаружена зависимость между получением субсидии и осведомленностью и желанием внедрения мероприятий энергоэффективности. Виявлені причини пасивності жителів многоквартирних домов во внедрении мероприятий по термомодернизации, и констатирован низкий уровень использования ими программ по энергоэффективности по сравнению с домохозяйствами. Доказано, что внедрение мероприятий энергоэффективности и энергосбережения жилищного фонда невозможно без слаженного

и активного сотрудничества всех заинтересованных сторон: государства, органов местного самоуправления, бизнеса и гражданского общества. Выявлено отсутствие финансовой возможности большей части опрошенных и их мотивации к осуществлению мероприятий термомодернизации. Обоснована приоритетность формирования энергоэффективного общества. Обоснована разработка стратегии, которая бы четко определяла цели, методы, пути и механизм распространения знаний об энергоэффективности и энергосбережении среди граждан и институтов страны включала государственные и региональные программы с учетом общественного мнения и современных финансовых механизмов и возможностей.

**Научная новизна.** Обоснована приоритетность формирования энергоэффективных начал в обществе на основании проведенного мониторинга со-

циально-экономических процессов относительно внедрения мероприятий энергоэффективности и энергосбережения в Полтавском регионе.

**Практическая значимость.** Заключается в том, что предложенный подход к оценке населением мер энергоэффективности и энергосбережения жилищного фонда позволяет выявлять, идентифицировать и оперативно реагировать на риски и угрозы национальным интересам в жилищной сфере, что будет способствовать совершенствованию нормативно-правового обеспечения и финансовых механизмов государственных и региональных программ.

**Ключевые слова:** энергоэффективность, энергосбережение, жилищный фонд, угрозы, энергоэффективное общество, социологический опрос

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