

MECHANISMS TO ENCOURAGE REGULATION AND ECONOMIC INCENTIVES FOR BUSINESSES TO ENERGY SAVINGS

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1. Introduction

Ukraine occupies one of the first places in the world according to the indicators of inefficient use of natural and energy resources (NER), which is reflected in the decline of the quality and competitiveness of products manufactured in the country. Due to high technological (technical and commercial) losses of these resources, limited working capital of enterprises and high bank interest rates on loans in Ukraine, which are several times higher than in developed countries, there will remain no resources for the state and commercial enterprises to finance energy efficiency projects.

As a result, part of losses of NER in the structure of total material costs of enterprises in Ukraine has been growing rapidly (almost three times over the period since 1991) and the rates of return to economic levels of the past decade have led to the fact that the country is significantly lagging behind not only developed countries but also behind most of developing countries.

Indecisive government's attempts to fix the extremely negative for industrial countries tendency with the help of resolutions by indirect action and government programs which are not adequately funded, have led to the fact that a huge energy saving potential in Ukraine has remained largely unused, and the problem has reached the level of threat to the energy safety of the State.

2. Analysis of the latest research

Basic scientific works of many Ukrainian and foreign researchers, especially such as by V. M. Heyets, S. P. Denysyuk, A. A. Dolinsky, V. A. Zhovtyansky, M. P. Kovalko, M. N. Kulik, G. G. Pivnyak, A. V. Prakhovnik, B. S. Stogniy, A. K. Shidlovskii, P. Bertoldi, S. Carne, S. J. Hansen, P. Langlois, M.-K. Lee, D. Newbery, J. Noh, J. P. Painuly, H. Park, M. Siner, are devoted to solving the current economic problem of increasing energy efficiency and saving. Much has been done, while in reality – low efficiency offered at the state level that does not allow Ukraine to leave the first position on the list of leaders in the world of energy waste, still remains.

Detailed analysis of the studies and publications shows that the works dedicated to market method of economic regulation and promotion of energy conservation and the development of economic mechanisms on this basis in specific conditions of transition economy, are not enough, though conceptually this approach has repeatedly been formulated by both Ukrainian and foreign researchers [1, p.41, p.43; 2, p.61; p.115; 3, p.16; 4, p.660; 5, p.31; 6, p.9; 7, p.63; 8, p.107].

Solving the problem of increasing energy efficiency and saving at the level of the economy is not a simple task and scientifically requires a complex of research focused on the development of

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methodological principles and market mechanisms of economic regulation and incentives for businesses to save energy, it is necessary to adjust the legal framework and implement special business economic order for energy saving projects, which provide favorable conditions for the use of the achieved savings of NER as the exchange of goods for investment attraction.

The article aims to systematize market methods and mechanisms of economic regulation and incentives for enterprises to save energy, to identify factors facilitating their adaptation and improvement and development of the basic requirements for their implementation in terms of transition economy in Ukraine.

3. The main body of the study

The approach to solving the problem of efficient use of energy resources in the former Soviet countries, and especially in Ukraine, with its energy-intensive production structure should be largely specific and aimed at transition to market methods of economic regulation and promotion of energy efficiency through the gradual refusal from the existing administrative-command centralized power management techniques based on a distorted system of prices, tariffs and wages, cross-subsidizing consumers and imperfect recording of the use of energy. The pace of resolving the abovementioned issues in Ukraine in comparison with EU countries can be seen from Fig. 1, where the curves are changing from year to year in energy intensity of gross domestic product (GDP) of Ukraine and the EU.

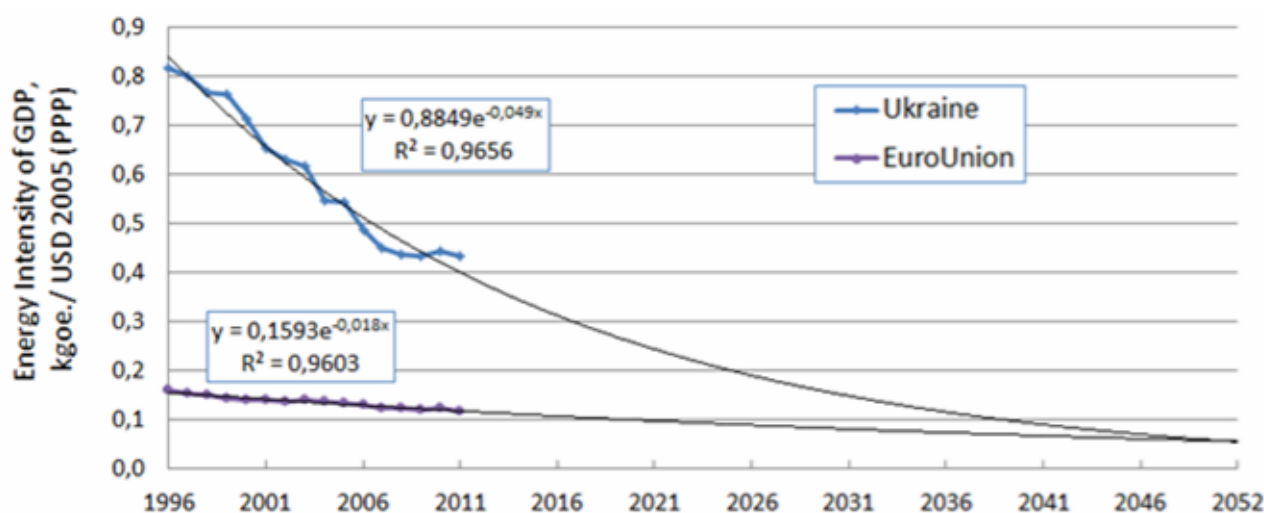


Fig. 1. Trends in energy intensity of GDP by year for Ukraine and the European Union

Source: www.yearbook.enerdata.net, authorial calculations

Results of exponential approximation of these curves with the help of predictive function Microsoft Excel spreadsheet, are shown in Figure 1, show that the average value of the specific rate of energy intensity of GDP will amount for each year of the forecast 50-year period, respectively, 0,049 and 0,018 for Ukraine and EU with the value of the reliability of the approximation, determined by the square of Pearson's correlation coefficient R^2 , more than 0,96. That is, even under the optimistic scenario conservation of existing annual rate of relative decline in energy intensity of GDP, which is equal to 2,72 according to the ratio of specific indicators, Ukraine is able to catch up with the EU in terms of GDP energy intensity somewhere in the early 50s.

Mechanisms of economic regulation and promotion of energy efficiency in terms of theory are complex systems with the hierarchical structure that includes organizational, methodological, regulatory, financial, technical and economic information and relationships between all participants of economic regulation and incentives for energy efficiency to implement economically viable energy saving measures. Their main feature should be the focus on a systematic

approach and integrated energy-financial-economic indicators related to the productivity of enterprises, and their subsequent use in the formation of price incentives to increase enterprise efficiency and reduce costs. Thus the mechanisms of economic regulation and energy savings promotion are called up to provide guaranteed profit growth of companies without reducing the basic level of taxation, which is important in terms of their attractiveness to the State.

The analysis shows that the main reasons of the imperfection of available functions and mechanisms for managing energy efficiency in Ukraine are:

- In the area of pricing and tax policy it is the practice of compensation of losses for NER suppliers and utilities due to cross-subsidize consumers and budgetary subsidy rates, which gives a distorted signal to the effectiveness of different types of NER and energy-saving equipment, affects negatively the balance of payments in the country's economy and virtually eliminates the interest of suppliers and consumers of energy services in improving energy efficiency;
- In the area of regulation and standardization it is the lack of clear criteria, procedure and terms of use, which transforms the system of regulation and standardization mechanism based on achieving specific goals with progressive improvements in energy efficiency, into the mechanism of "legitimizing" the costs of NER, which are subsequently included in the expenses of companies and energy service rates for services;
- In the area of certification and marking, which is developed in the world, but not in Ukraine it is the lack of market mechanisms influencing the manufacturers and suppliers of equipment, materials and services in order to improve their energy efficiency through informing and promotion of consumers, even financially, to procurement and use of more energy efficient equipment, materials and services;
- In the area of expertise, control and certification it is the need to introduce energy management systems, energy audits providing of companies and organizations of all patterns of ownership, developing schemes and projects for attracting investments to energy efficiency, which in Ukraine are in their infancy;
- In the field of vocational education and training it is a radical change in the composition and content of training and retraining programs to careful attitude to NER and energy services that must be provided by telling about the economic, environmental and social benefits of energy efficiency and saving and monitoring and testing the level and efficiency of knowledge application.

Thus, in a market economy the primary goal of public administration in the field of energy efficiency is to ensure energy safety by creating economic mechanisms of energy markets, reduce the impact on the environment, creating conditions for attracting private investment to the development and maintenance of power supply upgrades and others.

Improvement is also required in the existing system of state management and regulation of resource issues, organizational and information supporting activities in the field of public-private partnerships, especially those related to the interaction between the state and business (symbiosis between state and market options [6, p.59, p.62]), namely:

- energy saving funds (state and municipal), environmental funds and funds for energy efficiency of enterprises;
- targeted funding mechanisms for energy efficiency projects with budgets of different levels based on revolving mechanism of preferential state loans implementation of investment projects;
- energy-transfer mechanisms in the long-term lease (leasing);
- mechanism of target-oriented loans and attraction of foreign technical assistance, including in the framework of the joint project under the green investment scheme;

- mechanisms for financing by commercial banks, credit facilities and agreements, venture capital funds.

The implementation of the abovementioned mechanisms can be done through the establishment at the local level strategic alliances, coalitions and clusters as a form of integration (cooperation, competition, etc.) acting as a single entity, legally independent entities (members) of the market-businesses, companies and organizations, including participation in affiliate interaction (financial, coordinating, regulatory, etc.) of state and municipal government. The main result of the partnership should be in obtaining and implementing synergistic effect increasing the efficiency of targeted (coordinated) activities combined in the integration of complementary assets of all market participants, which outperforms the result of individual subjects.

It should be understood that the competitive activity of entities should contribute to the improvement of production, technical, technological and economic development, rationalization of production; otherwise it will be classified as anti-competitive concerted action, which is prohibited by law.

First of all, you need to create conditions for effective use of funds released in enterprises and institutions from implementation of effective use of NER and reduction of process losses, for the return on investment and loans, implementation of new energy-saving measures and financial incentives for teams and individuals. Achieving this goal requires the execution of the basic requirements for the implementation of mechanisms of economic regulation algorithm that provides:

- pricing and potential output “product” (i.e., the volume of NER savings achieved and funds for their consumption) offered to investors as a source of repayment;
- account of goods produced as a result of implementing energy efficiency measures in the accounting system and financial reporting;
- release of the sales, storage and transfer of funds calculated in the accounting system and financial statements as a result of the decrease in fuel and energy consumption, from the current account to a special account for the target use as a return to investors, in the budgets of the city and state and the implementation of new energy saving measures;
- account of additional volume of work associated with the installation, repair and maintenance of energy saving equipment, implementation of the system for financial stimulation of employees teams and individuals who will provide savings of NER for the period of implementation of energy saving measures.

Among the most common economic mechanisms for attracting investments to energy saving as a part of international technical assistance which have already been pilot tested in Ukraine, it is worth noting the following:

- energy performance contracting mechanism;
- leasing mechanisms of supply and use of energy efficient equipment;
- incentive regulation mechanism from suppliers of NER (mechanism of demand side management);
- revolving mechanisms of multiple use of the saved funds for the implementation of new energy efficiency projects;
- mechanism for energy saving projects financing from the state and local budgets on the return basis.

Among the new market approaches to solving problems in the field of energy saving, which are being introduced in Ukraine, the mechanism of regulatory asset base (regulatory

asset base, RAB) should be mentioned, the principles of which are determined by the total value of loans and own assets of natural monopolies subject to regulation [9, p.29; 10, p.22; 11, p.3; 12, p.21].

In the case of incentive regulation under this mechanism the groups of assets included in the regulatory framework are allocated, the term of their useful life and depreciation method of assets and on the regulatory framework for the long term (at least 3–5 years) within the threshold levels are established by regulatory standards return (yield), which generates and ensures the implementation of the policy regulator.

The use of this method in developed countries has confirmed its effectiveness and significant advantages (compared with the current system in Ukraine “cost plus”) with complex issues of attracting investments, reducing prices for goods and services and creating incentives to reduce operating costs of the regulated companies.

4. Conclusions

The current system of economic regulation and promotion of enterprises in the field of energy efficiency in Ukraine is unable to perform its tasks in full. Removal of existing deficiencies has already led to the fact that the problem reached the level of national importance, which solution now from a scientific point of view requires a systematic approach that is based on the methodology of public-private partnerships.

Great importance in the process of improvement of business regulation system should be given to considered implementing forms of market management mechanisms and regulation of energy saving. Thus, the main result of public-private partnerships should be to obtain and implement synergistic effect of a coordinated increase of efficiency (focused) activities combined with the integration of complementary assets of all market participants, which should exceed the total result of separate entities.

The method of regulatory asset base, the principles of which are determined by the total value of loans and own assets of companies to be regulated is currently the most common in developed countries in the tariff regulation of natural monopolies with branched network infrastructure, has been proved in practice, and in considering how to improve the existing regulatory framework, can be also recommended for the use in Ukraine.

The prospects of further developments in the field of mechanisms of economic regulation and promotion of enterprises to energy saving is determined by the necessity of the state for diversification of supply and reduction of dependence on imports of energy resources, which will raise the level of competitiveness of national goods and products on international markets.

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Summary

In this article the arguments for practical use of market mechanisms to encourage regulation and economic incentives for businesses to save energy and improve energy efficiency are presented, methods and mechanisms of regulation focused on the development of public-private partnerships are systematized.

Keywords: energy saving, economic incentives, regulation mechanisms.

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