Issues of implementing the state program of energy saving and energy efficiency

Vera Borshcheniuk[1], *Nina* Semeryanova[1], *Uliana* Filatova[2], *Darya* Nikolaeva[3,*], *Elena* Frolova[4]

[1] South Ural State University (National Research University), Nizhnevartovsk Branch, Mira str., 9, 628600, Russia
[2] East Siberian branch Russian state University of justice, Ivana Franko str., 23-a, Irkutsk, 664074, Russia
[3] Tyumen Industrial University, Volodarskogo str., 38, Tyumen, 625000, Russia
[4] Ugra State University, Chekhov str., 16, Khanty-Mansiysk, 628012, Russia

Abstract. The article discusses the main issues of energy saving and energy efficiency in the Russian Federation, in particular, the issues of implementing state policy and development of energy management in the region. The authors define the concept of "energy saving" through the prism of subject of regulation, which more fully reveals the whole range of relations of energy saving, corresponding to the essence of legal regulation. The purpose of the study is to analyze legal and managerial problems of implementation of state program on energy saving and energy efficiency in the framework of regional management. The scientific novelty of the study consists in studying problems of energy saving and energy efficiency in the implementation of regional legislative establishments and issues of effectiveness of energy management in the region. The leading approach to the study of this problem is dialectic, analysis, synthesis, formal legal and comparative legal method. Conclusions: First, the state program of energy saving and energy efficiency at the regional level is not being implemented effectively enough. The main problem lies in weak coordination policy of interaction between the region and municipalities in organizing and conducting activities aimed at effective energy saving in the region. Secondly, the use of energy-saving technologies at industrial sites and business facilities is fairly low. Thirdly, there is no comprehensive legal study of this area of relations, and scientific papers are fragmentary.

1 Introduction

The issue of “energy saving” and “energy efficiency” should be significant for researchers, since the results will contribute to an increase in the state’s financial capital, environmental value, national security, personal safety of citizens, and human comfort.

As a rule, economists and technical specialists are engaged in energy saving studies (N.I. Voropai, Yu.M. Kogan, A.M. Mastepanov, I.I. Sventitsky, A.B. Tikhomirov).

[*]Corresponding author: a.copytowa@yandex.ru

Among legal studies there are very few comprehensive works devoted to the legal problems of energy saving and energy efficiency. Basically, such problems were considered through the prism of agrarian law (A.N. Bobylev, Z. S. Belyaeva, B. A. Voronin, V. V. Zarubin). The general problems of legal regulation of energy saving were considered in works of I.A. Ignatieva, A.R. Chirishyan, the concept and sources of civil law regulation of energy saving were investigated by V.P. Kamyshansky, A.A. Didenko, K.S. Marchenko, incentives and restrictions in energy saving were studied by E.I. Otyutskaya.

Currently, there is no single approach to understanding the categories of "energy saving" and "energy efficiency" in scientific circles. Current legislation contains quite a few abstract, non-binding declarations on directions and forms of state support in the field of energy saving and energy efficiency. The consequence of this lack of regulation is lack of an effective mechanism for implementing state program in the field of energy saving at the regional level.

The situation has determined the purpose of the study - to analyze problems of implementing state program on energy saving and energy efficiency within the framework of regional management.

Achievement of the goal is determined by solution of following research tasks: to analyze legal regulation of energy saving at federal and regional levels; to determine effectiveness of mechanisms for implementing state policy on energy saving in the region; to identify the percentage of energy efficient technologies used by enterprises in the region (city).

Scientific novelty of the study consists in studying problems of energy saving and energy efficiency in implementation of regional legislative establishments and issues of effectiveness of energy management in the region.

The international legal acts, in particular, the Rio Declaration on Environment and Development, adopted at the United Nations World Conference on Environment and Development in 1992 (Rio de Janeiro), formed the empirical basis. of modern energy, the federal laws of the Russian Federation, regulating relations in the field of energy - the federal law of 03.04.1996 № 28 "On energy saving", the federal law of 23 November 2009 № 261 "On energy saving and on increase of Energy Efficiency and on Amendments to Certain Legislative Acts of Russian Federation ", the Energy Strategy of Russia for the period until 2030, which marks formation of an integrated federal and regional legislation on energy saving, the state program "Housing and Communal Complex and Urban Environment", approved by the government of the KMAA-Ugra in 2018. Its main tasks are aimed at reducing consumption of energy resources and improving energy efficiency in the KMAA - Yugra, the results of monitoring activities of small and medium-sized enterprises in the city of Nizhnevartovsk, in the framework of a municipal contract in 2018.

2 Methods

The following scientific methods were used in the work: dialectics, analysis, synthesis, formal legal and comparative legal method.

Methods for implementing state objectives are aimed at ensuring proper legal regulation and the creating an effective energy consumption mechanism in the regions. Theoretical aspects of problems of legal regulation were considered by following authors: V.V. Zarubina, I.A. Ignatieva, A.R. Chirishyan, they've allowed to comprehend legislative contradictions in regulation of energy saving and energy efficiency. The dialectical method made it possible to comprehensively explore the essence of such contradictions. The comparative legal method made it possible to correlate federal legislation with the legislation of the region, to reveal the discrepancy and shortcomings of regional energy saving legislation. The general scientific method allowed us to formulate the definition of

energy saving, which, in our opinion, more fully reflects the essence of the legal regulation of these relations.

3 Results

Russia has always been famous for its rich natural resources and energy resources, which constitute its invaluable capital and provide a competitive advantage on a global scale. In order to ensure safety of national capital, the state sets a number of tasks for saving and rational use of natural and energy resources.

A small group of Russian scientists including Academician V.A. Koptyug - Chairman of the Siberian Branch of the Russian Academy of Sciences (1980–1987), Chairman of the Joint Scientific Council of the Russian Academy of Sciences on Ecology, member of the Consultative Council on Sustainable Development under the UN Secretary General, took part in the UN World Conference on Environment and Development in 1992. (Rio de Janeiro), which formulated three main tasks of the energy of the future: non-wasteful use of energy resources, efficient use of energy and increasing the use of renewable (alternative) energy resources.

The backbone regulatory act in the field of energy saving in the Russian Federation was Federal Law No. 28 dated April 3, 1996 “On Energy Saving”. This law was more declarative in nature, since it lacked specific mechanisms ensuring efficient use of energy resources. In May 2009, the President of Russian Federation in the Budget Message to the Federal Assembly “On Budget Policy in 2010 - 2012”, identified this area as one of the priorities in the modernization of country's economy. The solution of the task began with its legalization.

In November 2009, a new Federal Law No. 261 “On Energy Saving and Improving Energy Efficiency and Amending Certain Legislative Acts of the Russian Federation” was adopted. Its provisions intensified the mechanisms for implementing the tasks. By the order of the Government of the Russian Federation, the Energy Strategy of Russia for the period until 2030 was approved, one of the measures of the state energy policy indicated the formation of an integrated federal and regional legislation on energy saving. By 2020, the energy intensity of the domestic economy should be reduced by 40%, which will require improving the energy management system to improve energy efficiency.

Within the framework of state support, economic incentives are provided for application of various energy saving programs, in particular: assistance in investment activities; promotion of the use of energy service contracts; assistance in development and use of facilities, technologies with high energy efficiency; assistance in construction of apartment buildings with a high energy efficiency class; support of regional, municipal programs in the field of energy saving and energy efficiency, etc. (Article 27 of Law No. 261).

The powers of the federal executive authorities in the field of energy saving and energy efficiency can be transferred to the executive authorities of the constituent entities of the Russian Federation by the decrees of the Government of the Russian Federation in the manner established by the Federal Law of October 6, 1999 No. 184 “On general principles of organization of legislative (representative) and executive public authorities of the constituent entities of the Russian Federation ".

And yet, despite the voluminous federal regulation in the field of energy saving and energy efficiency, implementation of these legislative provisions is practically impossible without a certain array of regional legislation and by-laws.

Thus, the previously existing regional target program “Energy Saving and Increasing Energy Efficiency in the Khanty-Mansiysk Autonomous Area for 2011-2015 and the Prospect until 2020” showed its inefficiency due to the lack of unified policy between the region and municipalities in organizing and conducting activities aimed at saving energy. In

this regard, there is a need to develop and implement regulations and forms of interaction between the region and municipalities for implementation of program activities.

In this regard, the Government of the Khanty-Mansi Autonomous Area-Ugra dated October 5, 2018 No. 347-p approved a new state program "Housing and Communal Complex and Urban Environment", its main tasks are aimed at improving efficiency, quality and reliability of supply of utility resources; on development and modernization of centralized power systems, including introduction of intelligent control systems for electric grid facilities based on digital technologies; to reduce energy consumption and energy efficiency in Khanty-Mansiysk Autonomous Area - Ugra.

The new program envisages an increase in energy efficiency at municipal infrastructure facilities, implementation of energy-saving measures in transport and oil and gas complex, in municipal budgetary institutions of the region, and in housing stock, providing subsidies to the non-profit organization "Center for Development of the Housing and Utility Complex and Ugra Energy Conservation", supporting activities of the Department of the Housing and Utilities Complex and Energy of the KMAO-Ugra.

Undoubtedly, implementation of state policy on energy saving and energy efficiency should be carried out by business entities. Profit in business is the permanent installation and engine of modern market relations. Achieving its maximum value in specific production conditions while reducing costs can be described as "suus perfectum". To this end, many enterprises are trying to include in their development programs various ways to improve quality, optimize costs, and improve product competitiveness. Energy saving is one of these methods, which contributes to lower costs,as well as to improvement of production process, and improving product quality.

Virtually any energy consumer can significantly reduce energy consumption by improving equipment maintenance and energy management (for example, eliminating steam, heat, room insulation, etc.). Other areas include development of measures to optimize energy consumption, to improve operating conditions (for example, work at lower but quite acceptable temperatures, etc.). Numerous examples from practice have shown that only thanks to corporate (regime) measures energy consumption can be reduced by 25–30%.

According to the results of monitoring of small and medium-sized businesses in the city of Nizhnevartovsk, within the framework of the municipal contract No. 190-2018 dated June 29, 2018, 62% of entrepreneurs are ready to use energy-saving technologies at production sites and objects of entrepreneurship, 26% of them are already using activities of these technologies, mainly educational organizations, construction organizations and organizations engaged in the production of food, including beverages. Increasing this indicator, according to experts, is very promising, subject to further work in this direction. [11]

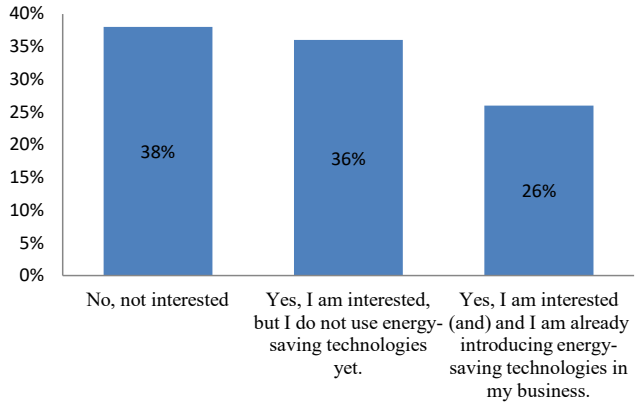

Fig. 1. Distribution of Response Options

Thus, we can note implementation of state program of energy saving and energy efficiency at the regional level, as evidenced by the state program Housing Communal Complex and Urban Environment of 2018 No. 347-p approved by the government of Khanty-Mansi Autonomous Area. on the implementation of program activities. However, we have to conduct research and assess its effectiveness in the future.

4 Discussion

Due to the fact that currently there is no single approach to understanding the categories of "energy saving" and "energy efficiency", scientists try to explain the essence of this terminology in different ways. V.V. Efremov, G.Z. Markman understand energy saving as implementation of measures to improve efficiency of energy use, electricity and thermal energy, and energy efficiency is technically feasible and economically viable quality of energy use at the current level of development of engineering and technology. This approach to the definition of energy saving through energy efficiency is exposed in scientific circles to fair criticism. So, according to D.E. Davydyants, V.E. Zhidkova, L.V. Zubov, the definition of energy efficiency as a quality of energy use does not look very good. Energy efficiency is noted by the authors, there is an estimate and no more, for example, 12 or 15% of profitability characterizes more than quality of energy use. They consider energy saving as a way of implementing a set of measures to reduce energy consumption, ensuring at least the preservation of former production and marketing opportunities for goods (works, services) of the required quality, volume and range. Energy efficiency, as the degree of compliance of the effect (end result) of a particular type of activity with the used or consumed energy resources, taking into account their energy saving at the moment of time or for a certain period. The criterion of energy efficiency can be formulated as the achievement of either a certain result of activity at the lowest cost of energy resources, or the greatest result of activity at a certain cost of energy resources without their overexpenditure.

A.A. Andrizhievsky, V.I. Volodin understand energy saving as a scientific, organizational, practical and informational activity, which is aimed at the highly efficient use of energy resources and which is carried out using economic, technical and legal methods.

A number of authors define energy saving as the implementation of legal, organizational, scientific, production-technological and economic measures aimed at energy-efficient production and the use of fuel and energy resources or engaging in economic circulation to reduce the consumption of fossil fuels non-traditional and renewable energy sources (P.P. Bezrukikh, O.L. Danilov, P.A. Kostyuchenko).

The Federal Law No. 261 dated November 23, 2009 "On Energy Saving and Improving Energy Efficiency and Amending Certain Legislative Acts of Russian Federation" gives the following definition of energy saving - this is the implementation of organizational, legal, technical, technological, economic and other measures aimed at reducing the amount of energy resources used while maintaining the corresponding beneficial effect from their use (including the volume of products produced, the work performed). And energy efficiency is understood as a characteristic that reflects the ratio of the beneficial effect of the use of energy resources to the costs of energy resources produced in order to obtain such an effect in relation to products, the technological process, a legal entity, an individual entrepreneur.

Designation of subject of regulation of art. 1 of Law No. 261 is controversial, and ambiguity and different approaches to understanding the basic conceptual apparatus directly lead to problems of law enforcement.

The study made it possible to draw a number of conclusions that are characteristic of the Khanty-Mansiysk Autonomous Area-Ugra. The findings can contribute to the resolution of certain problems prevailing in the field of legal regulation and the subsequent implementation of legislative provisions. The study can serve as a basis for further scientific work, both in the field of legal regulation of energy saving and energy efficiency, and in the field of energy management in the regions.

4 Conclusion

Designation of subject of regulation of art. 1 of Law No. 261 is controversial, and the ambiguity and different approaches to understanding the basic conceptual apparatus directly lead to problems of law enforcement.

The study made it possible to draw a number of conclusions that are characteristic of the Khanty-Mansiysk Autonomous Area-Ugra. The findings can contribute to the resolution of certain problems prevailing in the field of legal regulation and subsequent implementation of legislative provisions. The study can serve as a basis for further research. In modern Russian law, comprehensive legal research in the field of energy saving and energy efficiency is practically absent, and scientific papers are fragmentary. Ambiguity and different approaches to understanding the basic conceptual apparatus directly lead to problems of law enforcement. It seems it would be more expedient to define "energy saving" as relations arising in the process of carrying out activities aimed at reducing energy consumption by efficient production and use of energy resources. Such a definition, in our opinion, more fully discloses the entire spectrum of energy saving relations and is more in tune with the essence of legal regulation.

The main problems of energy saving and energy efficiency in the Russian Federation include difficulties associated with implementation of state policy and development of energy management in the regions.

The state program of energy saving and energy efficiency in Khanty-Mansiysk Autonomous Area-Ugra is not productively implemented. The main problem lies in weak coordination policy of interaction between the region and municipalities in organizing and

conducting activities aimed at effective energy saving in the region. In addition, the use of energy-saving technologies at industrial sites and business facilities is fairly low, but over 50 percent of consumers want to follow state program of energy saving and energy efficiency.

The problems identified by the regional authorities are being actively addressed. It is confirmed by the state program approved by the government of Khanty-Mansi Autonomous Area-Yugra, which set the tasks for establishing effective interaction between the region and municipalities in order to successfully implement program activities regulating energy saving and energy efficiency in the field of energy management in the regions.

References

1. URL: https://wiselawyer.ru/poleznoe/53484-pravovoe-regulirovanie-oblasti-ehnergosberezheniya-povysheniya-ehnergeheshesjj-ehffektivnosti (Last accessed 25. 01. 2019).
2. Yu. V. Lebedev, Theoretical foundations of environmentally sustainable development of territories: a patriotic look, ed. V.P. Anufriev, p. 156 (Yekaterinburg, Ural. state Mining University, 2015)
3. O. I. Averina, A. S. Nalyutova, Application of energy-saving technologies in the economic activity of enterprises, Young Scientist **11**, p. 734-737 (2015)
4. URL: http://www.energosovet.ru/stat320.html (Last accessed 01/26/2019).
5. V. V. Efremov, G. Z. Markman, “Energy saving” and “energy efficiency”: clarification of concepts, a system of balanced energy efficiency indicators, 4, t. 311, Bulletin of Tomsk Polytechnic University (Tomsk, TPU, 2007)
6. D. E. Davydyants, V. E. Zhidkov, L. V. Zubova, To the definition of the concepts of "energy saving" and "energy efficiency", Basic research **9(6)**, p. 1294-1296 (2014)
7. A. A. Andrizhevsky, V. I. Volodin, Energy saving and energy management: studies. Allowance, 240 p. (Minsk, Your School, 2005)
8. http://www.vce34.ru/press-center/103. (Last accessed 01/25/2019)
9. E. Vozniak, A. Burgundosova, A. Kopytova, MATEC Web of Conferences 239, 01016 (2018) DOI: 10.1051/matecconf/201823901016
10. N. Zotkina, A. Kopytova, M. Zenkina, O. Zhigunova, MATEC Web of Conferences 106, 08058 (2017) DOI: 10.1051/matecconf/201710608058
11. N. Zotkina, S. Bardasov, M. Gusarova, A. Kopytova, MATEC Web of Conferences 106, 08050 (2017) DOI: 10.1051/matecconf/201710608050
12. A. Minnullina, IOP Conference Series: Earth and Environmental Science 90, 012089 (2017) doi:10.1088/1755-1315/90/1/012089
13. A.V. Kopytova, Exchange of intellectual property 3(XIV), 31–37 (2015)
14. D. Izvin, V. Lez'Er, A. Kopytova, MATEC Web of Conferences 170, 01065 (2018) DOI: 10.1051/matecconf/201817001065
15. V. Lezier, M. Gusarova, A. Kopytova, IOP Conference Series: Earth and Environmental Science 90(1), 012069 (2017) DOI: 10.1088/1755-1315/90/1/012069
16. N. Zotkina, M. Gusarova, A. Kopytova, Advances in Intelligent Systems and Computing 692, 1204-1213 (2018) DOI: 10.1007/978-3-319-70987-1_129
17. A. Minnullina, A. Mottaeva, Formation of the priority directions of innovative strategic energy management. IOP Conference Series: Earth and Environmental Science 90, 012123 (2017) doi:10.1088/1755-1315/90/1/012123

18. E. Vozniak, T. Slavina, A. Kopytova, MATEC Web of Conferences 193, 04020 (2018) DOI: 10.1051/matecconf/201819304020