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LIGHTING PRODUCTS: PROBLEMS OF TECHNICAL AND LEGAL REGULATION OF ENERGY SAVING AND ENERGY EFFICIENCY

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ABSTRACT

One of the key problems in the state of the Russian energy sector is the creation of effective energy-saving technologies for both organizations and ordinary consumers. The forecast of scientific and technological development of the Russian Federation for the period until 2030, approved by the Government of the Russian Federation, mentions low volumes of energy saving in the sphere of final consumption as one of the threats to Russia's economic development.

In 2009, the Federal Law No. 261-FZ "On Energy Saving and Increasing Energy Efficiency" was adopted. The corresponding Resolution of the Government of the Russian Federation No. 961 of September 20, 2014 prescribes the creation of a database on the most effective technologies used in apartment houses, administrative and public buildings.

Federal Law No. 184-FZ of December 27, 2002 (as amended on July 29, 2017) "On Technical Regulation" establishes an imperative order, according to which technical and legal regulation in the field of application of energy efficiency requirements, requirements for lighting devices, electric lamps, used for lighting purposes, should be implemented at the level of the federal law approving the relevant normative legal act.

However, as of today this federal law has not been adopted. The technical and legal regulation of lighting products is carried out fragmentarily, at the level of national standards. The adoption of a federal law that establishes a technical regulation for lighting products will effectively respond to the challenge outlined in Presidential Decree No. 208 of May 13, 2017 "On the Strategy for Economic Security of the Russian Federation for the Period until 2030" regarding the development of energy-saving technologies and reducing the material consumption.

Keywords: users of lighting equipment, lighting costs, energy saving, energy saving technologies, producers and consumers of energy-saving technologies, energy efficiency, technical regulations, national standard

1. INTRODUCTION

Currently, the Russian Federation has faced numerous problems in the socio-economic, scientific, technological and environmental spheres that require the adoption of adequate measures aimed at their effective resolution. Decree of the President of the Russian Federation No. 208 of May 13, 2017 "On the Strategy for Economic Security of the Russian Federation for the Period until 2030" (item 12 of Section II "Challenges and Threats to Economic Security) contains an extensive list of the main challenges and threats to the economic security of the Russian Federation, in accordance with subparagraph 6, "changes in the structure of the global demand for energy resources and consumption patterns, the development of energy-saving technologies and the reduction of material intensity, the development of "green technologies" [1].

In fact, the problem of energy conservation is of a strategic nature, being one of the components

of the complex of economic threats and challenges that the Russian Federation has had to face. The Government of the Russian Federation approved the "Forecast of the scientific and technological development of the Russian Federation for the period until 2030", according to which energy conservation and energy efficiency have been identified as one of the priority areas for the development of science, technology and equipment [2]. Section VII of the Forecast "Energy Efficiency and Energy Conservation" formulates low volumes of energy saving in the sphere of final consumption as one of the threats to the economic development of Russia, and "mass introduction of energy saving technologies" as one of the potentials for the development of this priority area.

A well-known scientist in the field of lighting engineering, Professor J.B Aizenberg revealed in 2005 the interconnection between the levels of development of the state and the economy, depending on the energy consumption for coverage: "the degree of state development can be characterized, to a large extent, not so much by the volumes of steel and iron, oil or gas production, the number of manufactured machines, but by "light sufficiency" of the state with minimizing energy consumption" [3].

In 2009, Federal Law No. 261-FZ "On Energy Saving and Increasing Energy Efficiency" (hereinafter – the Law on Energy Saving) was adopted, [4]. Article 2 of this legal act structures the concepts of "energy saving". Thus, energy conservation is interpreted as "the implementation of organizational, legal, technical, technological, economic and other measures aimed at reducing the volume of energy resources used while maintaining the relevant useful effect from their use (including the volume of products manufactured, work performed, services rendered)".

Consequently, energy conservation as a set of measures and characteristics associated with the rational and efficient use of energy resources covers all without exception economic parties – consumers of energy resources. Professor J.B. Aizenberg in his article points to the importance of solving the problem of efficiency: "in lighting engineering science, technology and industry, the effectiveness of decisions taken when creating new products and installations is one of the cornerstones of technical policy" [3].

2. SCIENTIFIC TASK

The scientific task of the research is to analyze the state of technical and legal regulation of energy saving and energy efficiency of lighting products in the Russian Federation from the standpoint of realizing the interests of the economic security of the Russian Federation and developing a conceptual legal approach to regulating public relations in the sphere in question.

3. SOLUTION METHOD

The research conducted by the authors is based on the results of analysis of Russian regulatory, legal and technical legal acts, scientific works in the field of technical and legal regulation, comparative legal analysis of the provisions contained in the EEC Directives and Russian legal acts regulating energy efficiency and energy saving of lighting products.

4. RESULTS

In normative legal acts, the definition of lighting technology is considered in a technical perspective in the context of manufactured lighting products [5–7].

Among the legal acts affecting the problem of energy saving technologies in relation to lighting products, it should be noted the Order of the Government of the Russian Federation of November 13, 2009 No. 1715-r "On the Energy Strategy of Russia for the period until 2030" [5]. In this act, it was noted the creation in Russia of energy-saving and environmentally friendly lighting devices of a new generation on light emitting diodes and mercury-free gaseous discharge lamps.

By Order of the Ministry of Industry and Trade of the Russian Federation No. 529 of June 17, 2009, the Strategy for ensuring the uniformity of measurements in Russia until 2015 (hereinafter referred to as "the Strategy") was approved. So, in clause 4.4.6. "The development of metrological support in priority areas, including nanotechnology and nanomaterials" of the Strategy noted that "the creation of a complex of reference tools of a new generation to ensure the unity of optical-physical measurements in the field of space metrology and dual-use technologies will solve a number of important tasks, including … the introduction of new

types of energy-saving lighting technology, advanced domestic technologies for the production of lighting products " [6].

In 2015, the leading lighting consulting company LLC "Lighting Business Consulting" analyzed the state of the market of lighting products in the countries of the EAEU and the EU, which also affected legal problems [7]. Thus, in the analysis it was noted that "in accordance with the Kyoto agreement on the reduction of atmospheric emissions of CO_2 in 1997, the European Union has defined the following energy saving goals for the lighting industry:

• Reduction of energy consumption when using lamps;

• Reducing the consumption of mercury in the manufacture of lamps.

To implement these goals in the period 2005–2009, Directive 2005/32 / EC was adopted on setting framework requirements for eco-design (energy efficiency) for energy-consuming products, EU244/2009 on requirements for eco-design to household lamps and EU245/2009 on eco-design requirements for fluorescent lamps without ballasts, for high-intensity discharge lamps, as well as to the ballasts and lamps. In 2012, the EU Directive 1194/2012 was adopted to the requirements of eco-design for directional lamps and LED lamps [7].

The authors note that 2007 was a turning point for energy saving in lighting. However, the reasons for this were not EU Directives, which were adopted two years later, but consumer demand for compact fluorescent lamps and halogen lamps. In 2007, the market capacity for these types of lighting products increased, which reached the level of 32 %. The authors draw the conclusion that the market situation was the direct cause of the decline in energy consumption, and the EU Directives only legislatively supported the market trend [7].

At the same time, the role of the institution of technical regulation is growing, which acquires a trans boundary character. So, in the publication "Administrative and legal problems of the establishment of the Institute of Technical Regulation" one of the authors of this article, M. Lapina, drew attention to the importance of the international aspects of the institute of technical regulation, since "the state enters into interdependence relations as a result of the need to ensure the common interests with which the national interests are connected" [8]. In addition, technical regulation is one of the forms of state regulation of economic relations. Researcher A.S. Panova notes that "technical regulation is closely related to the economy, since it affects the systems of use of productive resources within the states. With the help of technical regulation, the state influences the activities of entrepreneurs by establishing technical requirements for the products (goods) and the processes of its life cycle. Moreover, at the present time, such an impact is more realized at the interstate level (within the boundaries of the EAEU) [9].

Federal Law No. 184-FZ of December 27, 2002 (as amended on July 29, 2017) "On Technical Regulation" contains a blanket rule, formulated in paragraph 6.1 of Article 46, on the basis of which, before the day of entry into force of the relevant technical regulations, technical regulation in the field application of energy efficiency requirements, requirements for lighting devices, electric lamps used for lighting purposes, is carried out in accordance with the Law on Energy Saving, other federal laws adopted in accordance with other legal acts of the Russian Federation in the field of energy conservation and energy efficiency. In addition, paragraph 1 of this article contains an imperative prescription, which fixes a list of purposes in accordance with which the requirements for the products are subject to mandatory implementation before the entry into force of the relevant technical regulations. These include the provision of energy efficiency and resource conservation [10].

Thus, the provisions of the law under consideration underscore the socially significant nature of resource saving and the need to follow mandatory requirements in terms of setting requirements for energy saving in the field of lighting products. Belykh V. and Panova A. note that "along with protection, technical regulation is designed to maintain and develop the national material and technical base, ensure energy efficiency and resource-saving, eliminate technical barriers to trade between countries" [11].

However, as of today the Russian Federation has not adopted a federal law that establishes technical regulations for energy saving in relation to lighting equipment. In this regard, it seems reasonable to analyze technical and legal acts containing technical norms that reflect the requirements for energy-saving technologies in relation to lighting products.

In technical and legal acts, the definition of lighting technology is presented in the context of lighting requirements for instruments that directly provide lighting.

In addition, it should be noted that the level of legal regulation of energy efficiency of lighting products is much higher than the level of legal regulation of energy saving of said products, despite the fact that the legal design of these definitions at a formal legal level is set forth in the Law on Energy Saving. Thus, RF Government Resolution No. 1356 of November 10, 2017 "On Approval of Requirements for Illumination Devices and Electric Lamps Used in Alternating Current Circuits for Illumination" sets strict mandatory requirements in terms of performance and energy efficiency in relation to lamps and general purpose lamps [12].

The implementation of the provisions of the Russian Federation Government Resolution No. 1356 will lead to a ban on tubular fluorescent lamps, as well as most high-pressure LED and mercury lamps, from July 1, 2018 in Russia. Since January 1, 2020 under the ban will fall fluorescent lighting and sodium high-pressure lamps [12]. In fact, RF Government Resolution No. 1356 continues the logical sequence of requirements and prohibitions initiated by the Law on Energy Conservation. Thus, in accordance with paragraph 8 of Article 10 of the Law on Energy Conservation, from January 1, 2011, incandescent lamps with a power of one hundred watts or more were prohibited to circulate on the territory of the Russian Federation, which could be used in alternating current circuits for lighting purposes from January 1, 2011 was introduced prohibition of the purchase of electric incandescent lamps to provide state or municipal needs that can be used in alternating current circuits for lighting purposes. Decree of the Government of the Russian Federation of 20.07.2011 N602 "On approval of requirements for lighting devices and electric lamps used in alternating current circuits for lighting" approved the requirements for lighting devices and electric lamps used in lamps with respect to the minimum permissible values of their light return (energy efficiency) [13].

The stated discrepancy between the requirements for energy efficiency and energy efficiency indicators established for lighting products can be eliminated by adopting a single normative act containing requirements for energy saving in relation to lighting products.

Analysis of technical and legal acts that contain regulations on lighting technology indicates the lack of a holistic approach to determining the parameters of energy conservation in relation to lighting products. Despite the fact that the Federal Law "On Technical Regulation" directly spelled out the need to adopt a federal law that establishes technical regulations for lighting products (lighting devices, electric lamps), this normative act is not adopted. This circumstance negatively affects the state of energy saving, since the use of lighting devices is ubiquitous.

Nor can we fail to note the ambiguous nature of the definition of "technical regulation", formulated in the current version of the Federal Law "On Technical Regulation". Thus, in paragraph 2 of Article 2 of this Law, technical regulation is interpreted not only as a mandatory, but also voluntary regulation of relations in the field of establishing, applying and executing mandatory requirements for products or products and associated design requirements (including exploration), production, construction, installation, commissioning, operation, storage, transportation, sale and disposal [10]. A similar ambiguity of legal terminology is contained in Federal Law No. 162-FZ of June 29, 2015 "On Standardization in the Russian Federation" [14].

In accordance with Clause 1 of Article 2 of the Federal Law "On Standardization in the Russian Federation", a document on standardization is defined as a document in which, for voluntary and repeated use, general characteristics of the standardization object are established, as well as rules and general principles with respect to the standardization object,, if the mandatory application of the standardization documents is established by this law. This duality of legal concepts blurs the clear distinction between national standards and technical regulations, but at the same time makes it possible to adopt strict energy-saving requirements in relation to lighting products not only at the level of technical regulations, but also in the form of an obligatory national standard. The latter, in our opinion, is possible in the case of introducing in the Federal Law "On Standardization in the Russian Federation" appropriate additions, in accordance with which the standardization documents establishing energy-saving requirements for lighting products must be mandatory. Adoption of appropriate technical regulations or a national standard setting energy-saving requirements in relation to lighting pro-

ducts and its inclusion in the fund of the federal information of technical regulations, and standards will facilitate not only the implementation of strategic tasks in the field of economic security, but will also increase the level of transparency in technical and legal regulation in the field of lighting products.

In addition, it should be noted that in the resolutions of the Government of the Russian Federation on the problems of technical and legal regulation of lighting products, there is a certain compliance with the requirements and prohibitions fixed in the EEC Directives. The adoption of the latter, as noted above, was due to the market situation of demand for lighting products. In the Russian Federation, the development of energy-saving technologies is an element of the economic security strategy formulated in Presidential Decree No. 208, so in this part one should not go only along the path of borrowing the technical and legal imperatives of the EEC in relation to lighting products.

The technical regulations or the national standard establishing mandatory energy-saving requirements in relation to lighting products should combine the requirements fixed in the considered standards and apply to lighting products used in public places-plazas, streets, roads, parks, squares, institutions, entrances, and etc. Adoption of this act will be an important legal milestone in ensuring economic security in the Russian Federation.

5. CONCLUSION

Thus, the technical and legal regulation of lighting products in the Russian Federation has faced a dilemma: to develop along the path of implementing the provisions of the EEC directives or to move in the direction of ensuring economic security with regard to the use of energy-saving technologies. Currently, the technical and legal regulation of energy saving and energy efficiency of lighting products is dispersed in various regulatory legal and technical and legal acts, which makes it difficult to implement the strategic direction outlined in Presidential Decree No. 208 of May 13, 2017 “On the Strategy for Economic Security of the Russian Federation at Period until 2030 “in the development of energy-saving technologies and reducing the material intensity. The Russian Federation needs a single legal act – a technical regulation or a national standard that must organically integrate the mandatory energy-saving requirements in relation to lighting products fixed in the standards reviewed, and extend to lighting products used in public places such as squares, streets, roads, parks, squares, institutions, entrances of houses, etc. Adoption of this act will be an important legal milestone in ensuring economic security in the Russian Federation.

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