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METHODS OF STIMULATING ENERGY EFFICIENT BEHAVIOR

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# **Introduction**

The problem of energy conservation is topical - both on a global scale and at the level of each individual country. Russia, as the world's largest power, is no exception. On the contrary, the energy-saving policy in the Russian Federation is going through an active phase. The need to save energy resources is dictated by a continuous increase in production, a general increase in consumption in the world, and the exhaustibility of these resources. In addition, the real danger is the danger of a global environmental crisis, which, unlike the real finiteness of raw energy reserves, does not present a threat here and now, but has a potential, hypothetical character and has an implicit temporal perspective.

In response to the evident threats various promotional initiatives are being implemented and supported by governments. Some of them target businesses, and others – end consumers. In the world practice, tools to improve energy efficiency and energy efficiency are divided into the following three categories:

1) enforcement measures - legislatively fixed norms and initiatives implemented "from above"; these solutions are most popular in European countries, where law-abiding population and producers support mandatory state programs.

2) Incentive measures that imply an impact on the producer. In countries that actively use this method, the tools of financial incentives, as well as PR tools are used. It is more difficult to calculate the economic efficiency of such solutions than in the case of the state program, but the average level of energy saving within these countries is quite high (examples are the United States, Japan, China).

 3)And finally, educational methods that imply an impact on the direct consumer, the formation of a new consumer culture based on careful use of natural resources and a conscious choice of energy-saving technologies.[[1]](#footnote-1)

The decision-making around creating and implemented energy-saving promotions is often concentrated around the discussion of environmental, technological, economic, political, social and legal factors, while discarding the managerial and marketing aspects of promoting energy-saving behavior. The use of superficial indicators of effectiveness for energy-saving promotional events and the lack of market research may lead to wrong interpretations of the motives of, for example, energy festivals and educational seminars participants, contributing to further distancing the promoted cause from the end consumer.

By summarizing and analyzing the indicators of effectiveness for energy-saving behavior promotion and aligning them with the goals and methods used to achieve such purposes, we are trying to contribute to the more efficient management of related processes, and in the long-run – to more energy-saving behavior. Therefore, the primary **aim of the work** is *to determine directions of improvement of methods of evaluating the effectiveness of energy-efficient behavior stimulation.*

In order to achieve the sated goal, the following **objectives** are posed for this study:

1. Define and systematize the main indicators of energy-efficient behavior of population

2. Analysis and classification of main methods of stimulating energy-efficient behavior

3. Determine the goals of Saint-Petersburg and Leningradskii region related to energy-efficient behavior stimulation through analysis of governmental policies

4. Determine main methods of governmental stimulation of energy-efficient behavior used in Saint-Petersburg and Leningradskii region

5. Determine the indicators of effectiveness of methods of stimulating energy-efficient behavior in Saint-Petersburg and Leningradskii region

6. To evaluate areas for improvement of the previously determined methods of stimulation by conducting an empirical investigation

7. To make recommendations on directions of improvement of evaluating the effectiveness of energy-efficient behavior stimulation used in SPb and Leningradskii region.

The methods used in this study include the analysis of secondary data gathered from scientific articles, governmental reports and other informational sources dedicated to energy-saving behavior promotion, and also primary data. First, over 40 interviews were gathered from participants of a local Energy saving festival in order to determine areas of improvement of energy-efficiency stimulating methods implemented by St. Petersburg and Leningradskii region authorities. Then, an online survey of 100 of St. Petersburg and Leningradskii region residents has been conducted to determine the more effective methods of energy-efficiency behavior stimulation for different groups of the population.

This work presents a comprehensive picture of energy saving and energy consumption in Russia based on a review of current scientific articles and monographs devoted to this topic. In the first chapter of the paper, the problem of energy saving in the Russian Federation is posed in the context of world experience, an assessment of key vectors of the modern Russian economy aimed at supporting energy conservation is presented, and a list of specific activities and methods for implementing this task is presented. In the second chapter, the main emphasis is placed on the social aspect of the problem, lists the mechanisms applied at the level of the national policy aimed at implementing energy saving and saving energy resources, social activities and programs that stimulate the formation of new rational behavior and social responsibility - both at enterprises and in private life. [[2]](#footnote-2) The third chapter is devoted to a review of the situation in St. Petersburg with the example of specific practices and initiatives for energy conservation and energy efficiency policies implemented in the Northern capital. Practical recommendations for improving the situation are given and prospects for increasing the energy literacy of the population are shown. In conclusion, we discuss the prospects for energy saving in the Russian Federation – the use of renewable and alternative energy sources, the need for state support and financing, and the development of a systematic approach to improving the energy efficiency of the Russian economy as a whole.

# **Chapter 1. Energy saving policies and practices in the world**

## 1.1. The importance of energy saving

Before turning to the main theme of this work, as a necessary preamble let us turn to the experience of the main geopolitical players and note the main milestones and trends characterizing the problem of saving energy resources in the modern world.

Energy efficiency has become an important characteristic and an objective condition for the economic development of any country at the end of the 21st century. Analysis of global energy efficiency trends shows that economically developed countries have long begun to pay great attention to improving the efficiency of the use of energy resources in all sectors, including through projects aimed at increasing energy efficiency in all sectors of the economy and increasing the share of renewable energy sources.

Based on this, we can distinguish the following signs of energy conservation as an object of civil law regulation.

Firstly, these are the activities of civil law subjects associated with the reduction of property costs when using traditional energy sources and the total volume of their use, as well as activities to increase the use of *alternative energy sources.*

According to official reports, proven gas reserves will last for 80 years, and oil - for only 20 years. At the same time, the problem of limited energy resources is of a global nature. The majority of scientists see the main solution to this problem in the formation of a firm policy of energy conservation and in the use of alternative energy sources.

In general, the use of renewable energy sources can significantly improve the energy efficiency level of energy and promote energy conservation. It seems that the efficiency of the use of alternative energy sources cannot be determined solely from the costs of innovative equipment, which at the initial stage can significantly increase the cost of the alternative energy received. At the same time, it is necessary to conduct a detailed analysis of the positive effect of introducing renewable energy as an element of the energy saving mechanism in the long-term.[[3]](#footnote-3).

Secondly, energy conservation as an object of civil law regulation is, first, entrepreneurial activity, since the realization of energy is a kind of business. The essence of such entrepreneurship is a combined sequence of actions, united by a single goal - the creation, implementation and commercialization of energy-saving innovative developments to improve energy efficiency in the production of goods, works or services, with a steady increase in energy production and the expansion of the consumer network. From this perspective, the entrepreneurial activity related to energy saving is an effective instrument of the legal mechanism of energy efficiency as an integral system for supporting or stimulating subjects of civil law in this area.

Thirdly, energy conservation is an activity in the basis of which there must be a balance of private and public interests in the field of energy supply. At the same time, the improvement of the mechanism of the correlation of private and public interests in energy saving is potentially possible only when forming the normative and legally established borders that determine the measure of public or private legal interest of the subject of the legal relationship by fixing mandatory rules of conduct for entities performing energy saving activities. Under the mechanism of legal restriction of public interest is understood a normatively defined system of interrelated legal means aimed at ensuring the effectiveness of the state energy policy in the field of energy conservation, preventing abuses and offenses on the part of all subjects of civil law participating in the energy saving relationship.

Fourth, energy conservation is an integral element of the legal mechanism of energy efficiency as a holistic system for supporting or stimulating civil law actors in order to provide energy services and other means of increasing energy efficiency in the use of energy sources.

Finally, fifthly, energy conservation as an activity is realized mainly within the framework of relations arising from civil obligations. Energy saving can be realized within the framework of the general design of a civil law contract for the sale of energy and a special contractual arrangement - an energy service contract.

In general, there are only three main components, or conditions for energy-efficient behavior::

• Elimination of irrational use of energy resources;

• Elimination of energy losses;

• Increasing the efficiency of energy resources.

On the other hand, there are also objective factors that prevent the distribution and consolidation of patterns of such behavior, in particular, for the end user, among which one can distinguish the following:

• Energy consumers are indifferent to optimization of energy demand and are more interested in satisfying it;

• Lack of knowledge among the population and production workers about the possibilities of energy saving in everyday life, in production and other areas related to energy consumption;

• physical and moral wear and tear of equipment;

• negligent attitude to energy saving both at home, at home, and at the workplace (switching off light and other household appliances that consume electricity).[[4]](#footnote-4)

## 1.2. Energy saving policies classification

In order to rationally evaluate all the diversity of methods of stimulating energy efficiency already applied in the modern world, it is necessary to introduce a number of classification characteristics.

1. **In terms of level (implementation), such methods can be classified as federal and regional.**

1. The following can be classified as methods of stimulating energy efficiency at the federal (state) level.

1.1. Development of federal standards, standards.

For example, in Germany, Greece and France, standards are applied for combustion chambers. In some countries, energy standards for engines, pumps, fans and compressors are being introduced. In construction, the most common of all used standards are the standards for the heat transfer of buildings and structures. They must ensure that the heat losses are below the maximum permissible level when designing new buildings. In some cases, national energy codes are also applied to rehabilitation of existing buildings. Normative efficiency regulation applies to both heating equipment and water heating systems. There are standards for energy consumption of refrigerators, washing machines and other types of home equipment.

In Russia this year, 2009, Federal Law No. 261-FZ "On Energy Saving and Improving Energy Efficiency and Amendments to Certain Legislative Acts of the Russian Federation" was adopted, and in 2010 the Ministry of Energy developed the state program "Energy Saving and Improving Energy Efficiency for the Period to 2020".

The main goal of the program is to reduce energy costs per unit of GDP by 40% by 2020. In the course of achieving this indicator, it is planned to solve the tasks: reducing the burden on the budget for the repayment of energy costs; ensuring competitiveness and financial stability of the economy; ensuring affordable prices for energy resources for the population and business; reduction of harmful emissions and improvement of the environmental situation; increase the culture of energy consumption.[[5]](#footnote-5)

1.2. Subsidies (more on this issue will be discussed below, in connection with the issue of economic incentives).

1.3. Conducting energy-saving measures (for example, mandatory energy audits, which are a prerequisite for the allocation of government subsidies).

1.4. Stimulation of the use of renewable energy sources.

This method has spread primarily in Europe. For example, in Denmark, utilities are required to buy energy from renewable sources. In the UK there are guaranteed prices for electricity from renewable energy sources. In Austria, Italy and the Netherlands, capital investments in renewable energy projects are supported, Germany provides support in the form of concessional loans, and Portugal reduced VAT on renewable energy equipment.

1.5. State regulation of prices and tariffs.

2. The following initiatives can be referred to the methods of stimulating energy efficiency at the regional level.

2.1. Various regional municipal programs.

"Smart cities". One of the main directions of modern urban planning is the design and construction of so-called "smart cities" (smart cities), which can be determined by the correspondence to the main parameters effectively connected together: economy, natural resources, human and social capital, quality of life, and participation citizens in the management of cities. The main problem associated with energy efficiency in "smart cities", which they encounter when designing them, is the accumulation (i.e., storage) of energy.[[6]](#footnote-6)

1. **On the quality of the impact. Methods of stimulating energy efficiency can be motivating (encouraging) or prohibitive (otherwise they can be called "hard" and "soft").**

2.1. As a rule, the following people are stimulating.

2.1.1. Exemption from payment of taxes or reduction of the tax rate.

For example, in the Netherlands, the consumption of electricity generated from the use of renewable energy sources is the basis for tax exemption. In a number of countries (Germany, Luxembourg, the Netherlands), the rate of accelerated depreciation is applied, which is the right granted to enterprises to write off investments in energy efficiency projects faster than other investments.

Tax privileges also apply in Japan. If a corporation or an individual entrepreneur purchases energy-saving equipment, one can claim:

- to the extent that the general tax or profit tax is reduced by 7% of the cost of the equipment purchased (the discount can be up to 20%);

- a measure in which a special discount equal to 30% of the cost of equipment is applied in addition to the usual discount in the first year of use of this equipment.

2.1.2. Preferential loans and loans (both federal and motivating, see classification).

Therefore, for example, the Japanese law on energy conservation requires the government to apply financial and fiscal measures to stimulate the rational use of energy. The law approves the priority of investments in energy conservation in comparison with investments in other equipment.

If an entrepreneur in Japan is going to introduce energy-saving equipment, he has the opportunity to obtain a loan on favorable terms in one of the banks, the capital of which is wholly owned by the government. Among them, for example, the Japan Development Bank finances relatively large enterprises, the Small Business Finance Corporation serves medium and small enterprises, the People's Financial Corporation - very small enterprises. When building a house for citizens of the country, if the house is provided with energy-saving elements (for example, additional thermal insulation), the upper limit of the loan can be raised.

2.1.3. Cash grants and government subsidies for energy conservation.

In some countries, for example in Italy, subsidies are provided to companies that use clean energy or planting trees.

2.2. To prohibit, or "hard", measures include the following.

2.2.1. Taxes.

For example, in Finland, different rates of energy consumption taxes are applied, depending on the way in which it was made.

2.2.2. Directly launched ban on the sale of appliances and equipment that have energy characteristics below a certain level (this item assumes the existence of regulations established at the state level).

1. **3. On subjects of influence.**

This classification sign implies the presence of various recipients of energy-saving policies and measures that stimulate it.

It can be specific citizens, the private sector, large enterprises.

3.1. Measures aimed at specific citizens and the private sector may be associated with increased general awareness and a common culture of energy consumption. Motivation here can be savings and prestige, as well as personal responsibility.

3.2, 3.3. Measures aimed at the private sector and enterprises overlap to varying degrees with those described in the previous paragraphs.

3.3.1. Mandatory appointment of the energy manager (in the field, at a particular enterprise).

 This is the practice of some countries, and it applies primarily to large enterprises. The responsibility is to develop annual plans for improving energy efficiency and monitoring their implementation.

More detailed measures on the subjects of impact (industry, private sector) on the example of Western Europe will be considered below, and the effectiveness of the implemented methods will be assessed.[[7]](#footnote-7)

1. **In addition, methods can be classified according to the mechanism of action. They can be noneconomic and economic.**

|  |
| --- |
| **The impact mechanism** |
| **Non-economic** | **Economic** |
| Improvement of the system for setting prices and tariffs for energy-consuming | Improving the system for setting prices and tariffs for energy carriers, prices for energy-consuming devices equipment, installations |
| Accounting and control of fuel and energy resources | Bonus for saving energy resources |
| Development of state energy standards and their implementation. | Regulation of taxes, the imposition of fines in the case of wasteful energy consumption |
| Informing consumers about the effectiveness of products and equipment in terms of energy savings. | Granting soft loans and grants for energy saving measures |

4.1.1. Non-economic methods include, for example, setting norms and restrictions in the field of energy consumption.

4.1.2. Improvement of accounting and control of fuel and energy resources.

4.1.3. Development of state energy standards (energy consumption, energy losses) and their implementation.

4.1.4. Informing consumers about the effectiveness of products and equipment in terms of energy savings.

4.2. Economic methods of stimulating energy saving include improving the system for setting prices and tariffs for energy carriers, as well as prices for energy-consuming devices, equipment, installations; bonus for saving energy resources; regulation of taxes, the imposition of fines in the case of wasteful energy consumption; granting soft loans and grants for energy saving measures.

Currently, economic incentives for energy saving in Russia, as well as control systems, accounting and supervision over the use of fuel and energy resources, are not effective enough despite the federal target program "Energy Saving of Russia".

In Western Europe, for the basic principle, the following is taken: the higher the energy intensity (for example, in industry), the lower the level of regulatory (that is, legislative, implemented directly at the state level) regulation. The market itself will force energy conservation and energy efficiency, since it is directly related to costs. In many countries, the legislative framework makes it possible to ensure that the main measures for improving energy efficiency are legitimate. This is especially important in cases where special tax incentives or subsidies are established, which, of course, must be consistent with the law on taxation. In other countries, they limit themselves to assigning national energy programs the status of national programs.

Where there is subsidization of energy-saving measures, the conditions for obtaining it are established by law and are fixed in the legislative act for subsidies. Such acts are available in the legislation of 10 of the 15 EU member states. A law on tax incentives has been adopted in a number of countries. It allows you to make tax rebates on the cost of acquiring energy-saving equipment and pay a tax for consumed energy or invest in improving the energy efficiency of your own production.

In countries such as Belgium, Denmark, France, a revolving fund has been set up, which is a public fund for issuing loans to invest in energy-saving measures. Returned funds replenish the fund, making it permanent and self-supporting. As a rule, the interest rate set by the fund is lower than under normal commercial conditions, which is equivalent to a concessional loan. It should be noted that the renewable fund is quite an expensive event for the government.

As an alternative to it in a number of countries (for example, France, Germany, Luxembourg, the Netherlands) the rate of accelerated depreciation is applied. The latter is the right granted to income-generating enterprises to write off investments in energy efficiency projects faster than other investments, which makes it possible to reduce the tax debt in a short period.

In Austria, Denmark, France, Ireland, Italy, the Netherlands, under the rubric of common measures, the legal regulation (standards) of energy management of utility demand is applied, which is that, following the energy demand management program, the energy producer pays some of its profits rather to finance energy-saving events for consumers than for the construction of new generating capacities. Since most of the national energy suppliers are state-owned, it must approve the costs and benefits of implementing the program and the form of legal regulation of expenditures before financing such schemes.

For example, in the industrial sector, only a few countries in Western Europe are engaged in the legislative establishment of energy efficiency indicators directly related to industry.

The reason for the unpopularity of the introduction of state standards for industry is that in a market economy it has sufficiently powerful incentives for action.

Indeed, having high technical potential, financial means and high technical qualification of the personnel, the industry should strive for maximum incomes, introduction of a favorable price regime, monetary subsidies.

In some EU countries, mandatory energy audits are applied. In industries with high energy consumption, audits are conducted on a regular basis, and their requirements are mandatory. Energy audits are a prerequisite for the allocation of government subsidies or other assistance in the implementation of energy conservation measures. In Italy, France, the Netherlands, Portugal, there is a requirement to compile energy plans for large industrial enterprises, indicating the measures to be taken to improve energy efficiency, as well as reporting on activities aimed at reducing energy consumption.

In Germany, Greece and France, the standards for combustion chambers are applied. The role of such standards is particularly great where steam generators or heat treatment plants are used. In addition, in some countries are introducing energy standards for engines, pumps, fans and compressors.

To encourage the joint generation of heat and electricity in some countries of Western Europe (less than half of the EU member countries), such methods are used to promote energy conservation, such as the introduction of a favorable price regime and monetary subsidies, for example, co-financing the introduction of energy-saving technologies and equipment.

As for the sphere of construction and the communal sector, the most common of all the standards used here are the normative resistance to heat transfer through the enclosing structures of buildings and structures. They must ensure that the heat losses are below the maximum permissible level when designing new buildings. In some cases, national energy codes are also applied to rehabilitation of existing buildings.

Energy bills are a prerequisite for effective energy conservation work, including the search for and implementation of effective means of regulating the amount of energy consumed.

Transport is the most normatively regulated sphere. The most common instrument of influence here is the high taxes on fuel for engines. Fuel prices affect the decision of consumers about choosing a car, and this, in turn, guides manufacturers to produce certain types of cars. For example, in Italy there are high taxes and prices for gasoline and one of the most efficient in terms of fuel consumption car fleet in Europe.

However, many countries impose a tax on fuel not so much to stimulate the effectiveness of its use, but to replenish the budget.

The EU Directive requires an annual inspection of the state of vehicles, including the determination of emission characteristics, as well as an assessment of the quality and efficiency of fuel use.

Some European countries in the 1980s entered into voluntary agreements with vehicle manufacturers to improve the efficiency of new cars. Plans were achieved, although it is possible that external market factors would lead to the same result even in the absence of such agreements.

In some European countries, subsidies or tax rebates for the replacement of vehicles were used for limited periods. Sometimes these incentives were used to accelerate the introduction of catalytic converters.

The speed limit exists in each country for almost all types of roads. It, first of all, is motivated by security considerations, but at the same time it brings additional benefit on fuel economy.

Taxes on the purchase and import of cars, as well as the annual fee for cars, are means of increasing the annual income. Nevertheless, they are also often developed in order to stimulate consumer demand for machines with more efficient use of fuel.

In general, the taxation structure in transport directly affects producers. For example, it turned out that an increasing value-added tax (i.e., an increased indicator for fuel consumption) and the dissemination of information on its consumption help overcome the information barrier on the way to energy saving.

In the United Kingdom, such marking is a mandatory requirement, in other countries a voluntary classification procedure has been adopted. In some European countries, when passing an examination for obtaining a driver's license, there is a test of the quality of driving from the point of view of the efficient use of fuel.

Still this area is the use of renewable energy sources. The absence of many renewable energy technologies on the market means that a certain form of financial support for their development is required. Therefore, in many countries there are regulations aimed at providing such support.

The purchase of electricity from renewable sources has quite strong support in many countries. Different methods are used for this. For example, in Denmark, utilities are required to buy energy from renewable sources, in the UK there are guaranteed prices for electricity from renewable energy sources.

In the EU countries, other methods are being used to stimulate the development of energy-generating technologies on renewable energy resources. For example, in Austria, Italy and the Netherlands, support is provided for, among others, capital investments in renewable energy projects, Germany provides support in the form of concessional loans, and Portugal reduced VAT on renewable energy equipment.

## 1.3. Energy saving policies in Russia

In order to assess the effectiveness of measures on the energy saving problem currently in use, we need to say a few words about the basis on which modern energy-saving policies are built.

During the Soviet period, a lot of attention was paid to energy saving. However, the low cost of electricity and heat and fuel, caused by an abundance of natural resources, did not stimulate the introduction of energy-efficient technologies either in the housing and communal services or in industry.

Russia, being one of the leading energy powers in the world, has large reserves of energy resources both already open and potential. In the world's explored reserves, Russia's share is: oil - 13%, natural gas - 36% and coal - 12% (forecast reserves up to 30%). Having the longest coastline, Russia owns vast areas of the continental shelf (3.9 million sq. Km.), Highly effective in discovering oil and gas reserves, and there are already major discoveries. The shelf accounts for more than 100 billion tons of potential hydrocarbon resources.

The huge energy potential of Russia plays a negative role in energy saving. Thus, the specific electricity consumption in domestic industry is much higher than in developed countries: for the production of electric steel by 20-40%, aluminum by 20-26%, for the manufacture of parts of electrical appliances of comparable class by 20-50%. By reducing these costs, it is possible to reduce the future growth in Russia's electricity demand by 40-50%, and in fuel and energy resources in general by 60-70%.

Specific energy consumption in Russian cities is 3-4 times higher than in developed countries. The energy intensity of the national income in Russia is 1.5 times higher than the US level and twice as high as in the countries of Western Europe. At present, the demand for energy efficiency growth is key in the new energy strategy of Russia. The energy saving potential is estimated at 39-47% of the existing annual energy consumption, that is, almost a third of the generated energy is thrown "to the wind", and this is huge money, resources, costs. At the same time, a quarter of energy is lost in electric power and heat supply, 35% in industry and 25-27% in housing and communal services.

The function of monitoring the rational use of electrical and thermal energy in all sectors of the national economy was entrusted to the state energy supervision of the Ministry of Energy and Electrification of the USSR. «Gosenergonadzor» solved tasks that are relevant at the present time:

• solve the problems of saving electric and heat energy in enterprises and measures to disseminate positive experience in this area;

• organize a socialist competition for saving electrical and thermal energy;

• organize and hold annually, jointly with the All-Union Council of Scientific and Technical Societies, a tender for the best proposal for saving electric and thermal energy;

• To publish in the established manner literature and posters on the issues of saving electric and thermal energy. (Of course, the last point, like many propaganda acts in the Soviet period, is purely declarative in nature and a modern man is seen as doubtful.)

The system of state energy supervision bodies included energy sales companies (the so-called "energy sales"), which provided control over its use. Supervisory functions were related to the operation of power equipment and networks, the investigation of accidents and accidents. Due to this, there was a moment of administrative pressure on the end user - the consumer of electricity.

In modern Russia there is no such control, but there is experience of supervision over enterprises and financial opportunities for implementing energy-saving projects from the end user.

The socialist competition in the Soviet era for saving electric and thermal energy was a public recognition of the successes that the winning enterprise achieved in these matters.

The results of the competition were summed up once a quarter. The winners were enterprises that, along with technical and economic performance indicators, achieved the best results in saving energy, increasing the power factor or maintaining it at least 0.92-0.95. The successes of the winner of the competition were a motivating factor for other enterprises.

In modern Russia, organizing such competitions is not advisable - since their foundation has been and remains ideologically the most - but it is obviously worthwhile to celebrate the best enterprises on the Energy Day or at conferences, when the results of energy saving work are summed up. Such incentives may not necessarily be material in nature - and decisions about them should be taken at the regional level, specifically by the city authorities.

A common place for all stimulating events in the Soviet period was that all motivational measures were of a non-economic nature - this was the only possible option in the framework of a non-market and planned state economy.

One of the most important events held by the Ministry of Energy to save energy resources was the holding of All-Union competitions in the USSR. The competitions were held from 1945 until the collapse of the USSR. Their task was to attract a wide range of employees of enterprises and institutions of all industries, municipal and agricultural to the development and introduction of means for the most rational consumption of electrical and thermal energy by:

• Rationalization of energy consumption in technological processes;

• Reduction of losses in electric and heat networks;

• Use of secondary energy resources;

• Creation of more economical electric, electric lighting, radio engineering devices and devices;

• Improvement of existing energy equipment.

Based on the materials of the competition, compilations were published, where it was possible to get acquainted with the implemented proposals in detail and subsequently use positive experience. For the winners of the competition, this was not material encouragement, but mostly moral.

Currently, there are numerous competitions in Russia, including in the banking sector, in the consumer services sector, in the field of education and others. In recent years, there has been a tendency to organize an All-Russian competition for the best work on energy saving and energy efficiency, which also includes an environmental component. The initiator of the competitions is the Ministry of Energy of the Russian Federation, the scientific and technical community, higher educational institutions are involved. Such a competition has great potential and stimulating effect on creativity, reviving the search for new solutions in the field of energy conservation, ecology and energy efficiency.

During the Soviet period, a large number of books on energy saving were published. Initially, they were published in the series "For saving electrical and thermal energy", and since 1981 the series was named "Fuel and Electricity Savings". He released books from Energoatomizdat.

As we see, measures to increase the energy efficiency of enterprises and the private sector in the USSR were more informative (publications), as well as stimulating, but not economic.

In modern Russia, economic incentives for energy conservation, as well as control systems, accounting and supervision over the use of fuel and energy resources, are not effective enough despite the current federal target program "Energy Saving of Russia".

A prerequisite for the wide dissemination of energy saving measures is the provision of appropriate information to energy producers and consumers and the establishment of technical standards for designers and specialists. This applies equally to the sphere of production, and to the sphere of energy consumption. Thus, information is still not enough.

Information materials and technical standards should contain data on harmful emissions to the environment, energy efficiency assessment, energy consumption indicators that determine the choice and use of energy-saving technology.

The development of energy saving activities is influenced by conditions that stimulate the transfer of energy-saving technologies, the availability of own funds for financing and the opportunities to attract other sources, and the formation of an appropriate economic mechanism.

In the electric power industry, the specific indicators of energy saving are the specific fuel consumption for electricity generation and its consumption for transport in electric networks.

Specific fuel costs in Russia's electric power industry are higher than in industrialized countries. Perhaps this is due, among other things, to the initial extravagance caused by the presence of excessive natural resources and the lack of an urgent need to save them here and now.

Thus, the specific fuel consumption at thermal power plants (TPPs) in Russia is 344 grams of standard fuel per kilowatt per hour, and for thermal power plants in Germany, for comparison, 310 grams per kilowatt / kW / h, the best TPP in the world is 280 g. kW / kWh (the lag of the Russian heat and power industry in this indicator is 11 and 23% respectively).

At the same time, one should take into account the wide use of combined electric and thermal energy production in Russia, which, first of all, allows to achieve a significant reduction in specific fuel consumption, that is, a comparison with world leaders in condensation stations will be even more loser.

Reserves for saving fuel and energy resources at thermal stations are associated with the modernization of energy equipment, optimization of its operating modes in power systems and directly at power plants. The introduction of new modern power units (including combined-cycle plants), the further development of heating, the removal of obsolete and worn out equipment from work, have a significant effect on reducing specific fuel consumption.

The main ways to reduce the specific electricity consumption for its transport are to optimize the operating modes of the power systems, improve their balance, saturate them with voltage regulation devices and compensate reactive power, improve the quality of electricity.

In addition to technological measures, the Energy Saving Program in the electricity sector includes energy demand management subprograms, organizational measures, and R & D. In particular, the subprogramme of organizational measures provides for expansion of the scope of rationing, introduction of effective incentive systems for energy saving.

Important reasons for the unsatisfactory state of energy saving in the country are the following:

• public unconsciousness of the need to reorient the development priorities of the country's economy from energy production to energy saving;

• the general imperfection of the economic system;

• Lack of a full-fledged organizational mechanism for implementing the ideology of energy conservation in all areas of the economy and regions of the country.

It seems that the mechanism for the implementation of energy conservation should represent an energy management system covering the scope of legislation; organizational forms of energy saving planning and regulation; methods of economic stimulation in all parts of production, distribution and consumption of energy; economic structures for the practical implementation of energy-saving measures for the orders of enterprises, organizations and citizens.

The most important areas of savings in thermal power plants at thermal power plants are (in descending order of importance):

• Improvement of energy equipment, which requires significant capital investment;

• change in the operating mode of power equipment and the share of heat production;

• improving the quality of repairs of power equipment;

• changing the composition and improving the quality of the fuel used,

and in addition, and organizational factors, for example:

• rationing of specific fuel consumption at TPPs;

• availability of fuel accounting and control facilities and the quality of their operation;

• organization of a bonus for fuel economy;

• provision of thermal power plant subdivisions with normative technological and organizational and technical documentation;

• the supply of power to personnel;

• advanced training of employees.

Now, how is economic regulation implemented in Russia in the sphere of energy saving.

For example, in accordance with Article 67 of the Tax Code of the Russian Federation, an investment tax credit may be provided for investment in the creation of high energy efficiency facilities and technologies.

Decree of the Government of the Russian Federation of July 12, 2011, No. 562 "On approval of the list of facilities and technologies having high energy efficiency, the implementation of investments in the creation of which is the basis for granting an investment tax credit" approved a list of such facilities and technologies. The possibility of using an investment tax credit is solved using the indicator of energy efficiency and the established maximum values ​​of this indicator on the relevant facility or technology. In accordance with subparagraph 4 of Article 259.3 of the RF Tax Code for fixed assets having high energy efficiency and facilities having a high energy efficiency class (if for such facilities, in accordance with the legislation of the Russian Federation, the classes of their energy efficiency are specified) to the main depreciation rate of the organization to apply a factor of 2. The list of such objects should be established by the resolution of the Government of the Russian Federation. To date, the list has been developed, approved and will be approved in the near future. In accordance with paragraph 21 of Article 381 of the RF Tax Code for newly introduced facilities with high energy efficiency and for newly commissioned facilities with a high energy efficiency class, within three years from the date of registration of this property, organizations are exempted from paying taxes on property. The list of such objects is established by the resolution of the Government of the Russian Federation and is not currently approved.

Subjects of the Russian Federation as a measure of tax support measures in the field of energy conservation and improving energy efficiency have the right to establish tax incentives for regional taxes.

In accordance with Part 3 of Article 27 of Law No. 261-FZ "On Energy Saving and on Improving Energy Efficiency and on Amending Certain Legislative Acts of the Russian Federation," federal budgetary support in the field of energy conservation and energy efficiency can be achieved through co-financing of expenditure obligations in the region energy saving and increasing the energy efficiency of the subjects of the Russian Federation and municipalities in the form of subsidies from the federal budget. According to the State Program, funding is provided at the expense of the federal budget for 2011-2020. in the amount of 70 billion rubles.

On the basis of the order of the Government of the Russian Federation No. 1843-r of October 21, 2011, 55 subjects of the Russian Federation were provided from the federal budget with such co-financing for a total amount of 5.271 billion rubles.

Currently, amendments to Resolution No. 746[[8]](#footnote-8) have been developed and are being agreed upon, which will establish rules for the provision of appropriate subsidies in 2012 and subsequent years. In accordance with the Decree of the Government of the Russian Federation of December 14, 2010, No. 1016 "On Approval of the Rules for Selection of Investment Projects and Principals for Granting State Guarantees of the Russian Federation for Loans or Bond Loans Involved in the Implementation of Investment Projects" for loans, bonded loans for investment projects in the region energy saving and increasing energy efficiency, it is possible to provide state guarantees to the Russian Federation. According to the State Program, provision is made for state guarantees of the Russian Federation on loans for the implementation of energy saving and energy efficiency projects for 2011-2020. in the amount of 100 billion rubles. In accordance with Part 2 of Article 27 of Law No. 261-FZ[[9]](#footnote-9), one of the forms of state support for investment activities in the field of energy conservation and improving energy efficiency is the possibility of reimbursing part of the costs of paying interest on loans, loans received from Russian credit institutions for investment activities, investment projects in energy saving and energy efficiency.

However, the State Program, as well as the federal law on the federal budget for the current year and the planning period, does not provide funds for these purposes.

The rules for granting the corresponding subsidies from the federal budget have not been adopted to date. Measures of budgetary support for energy conservation and energy efficiency, implemented at the level of the constituent entities of the Russian Federation, municipalities, can consist in granting subsidies from budgets of the appropriate level and state guarantees of the subjects of the Russian Federation, municipal guarantees for loans for the implementation of projects in the field of energy conservation and energy efficiency.

As an example, the following measures for energy saving and energy efficiency improvement, for which subjects of the Russian Federation and municipalities are entitled to grant subsidies:

• Support for certain categories of consumers by providing them with funds for the installation of metering devices for energy resources used to calculate the energy resources used;

As an example, the following measures for energy saving and energy efficiency improvement, for which subjects of the Russian Federation and municipalities are entitled to grant subsidies:

• Support for certain categories of consumers by providing them with funds for the installation of metering devices for energy resources used to calculate the energy resources used;

• Granting subsidies to resource-supplying organizations by allocating funds for reimbursement of expenses under a contract for the installation, replacement and (or) operation of metering devices;

• Compensation in the case of the established social norm of consumption by the population of energy resources, as well as reduced prices (tariffs) used in calculations for the volume of consumption of energy resources (services for their delivery), social norms of consumption, organizations that supply energy resources, corresponding part of the costs of their implementation;

• reimbursement of a part of the cost of interest on loans, loans received from Russian credit institutions, to implement measures to save energy and improve energy efficiency;

• organization and development of production of equipment and materials with high energy efficiency.

Tariff support State support of tariff (price) stimulation of energy saving and energy efficiency increase can be carried out in accordance with federal laws and other normative acts of the Russian Federation, laws and other normative acts of the constituent entities of the Russian Federation by:

• differentiation of prices (tariffs) by time of day, differentiation by other criteria, reflecting the degree of use of energy resources;

• Establishment by the government authorities in the field of state regulation of tariffs of the social norm of consumption by the population of energy resources, as well as lower prices (tariffs) used in calculations for the consumption of energy resources corresponding to the social consumption rate, subject to compulsory compensation to organizations for the corresponding part of the costs of their implementation ;

• implementation of other measures of tariff (price) incentives, based on a combination of interests of producers, suppliers and consumers of energy resources.

One of the main incentives to increase the energy efficiency of natural monopolies, utilities organizations is the application of long-term methods of tariff regulation. With such regulation, companies have incentives to reduce costs, including energy resources, to increase the efficiency of resource use, as the resulting savings are maintained by the company and can be used for any purpose.

The rules for selection of investment projects for granting state guarantees for loans or bonded loans are established by Decree of the Government of the Russian Federation of December 14, 2010 No. 1016 "On Approval of the Rules for Selection of Investment Projects and Principals for Granting State Guarantees of the Russian Federation for Loans or Bonds Borrowed for Investment projects ".

The following selection criteria apply to projects in the field of energy conservation and energy efficiency in the sphere of housing and communal services:

• The total cost of the project is defined as the sum of the capital costs associated with the creation, modernization or reconstruction of the facility, is at least 500 million rubles;

• The share of the Russian Federation, constituent entities of the Russian Federation, and municipal entities in the authorized capital of the principal is no more than 49%;

• return (recoupment) of at least 80% of the total amount of invested funds is carried out in a period of not less than 7 years due to a reduction in the consumption of energy resources and (or) water;

• investments are made in the reconstruction and (or) modernization of the existing infrastructure of the housing and communal services or in the full replacement of the existing infrastructure with energy efficient ones;

• the magnitude of the possible reduction of energy resources, confirmed by the energy passport, is at least 15%.

The following selection criteria apply to energy efficiency and energy efficiency projects in the industrial sector:

• The total cost of the project is defined as the sum of capital expenditures and is at least 1 billion rubles;

• The share of the Russian Federation, constituent entities of the Russian Federation, and municipal entities in the authorized capital of the principal is no more than 49%;

• return (payback) of at least 50% of the total amount of invested funds is carried out within a period of not more than 5 years;

• investments are made in the principal assets of the principal, the value of the book value of the investment object (s) on the last reporting date must exceed 1% of the book value of all assets as of the last reporting date or 5% of the book value outside current assets on the last reporting date;

• the amount of possible reduction in energy consumption, as confirmed by the energy passport, is at least 10%.

At present, a few organizations that provide energy services are practically not merged into associations, unions and self-regulating organizations. Exceptions are companies that deal with energy audits.

The adoption of the law "On Energy Saving and on Improving Energy Efficiency" has already yielded certain results. The process initiated by the publication of this document can be called quite intensive. However, according to the expert of the UN International Program on Energy Efficiency, the implementation of this state program lacks logic.

In the document that preceded the new law, emphasis was placed on energy-efficient technologies and measures. They were divided into three main groups: cost-effective or low-cost with an insignificant payback period, measures with an average payback period and measures high-cost with a long payback period. In Russia, 2000, energy-efficient products of foreign production appeared, as well as domestic products, energy audit companies were established, and the first energy service companies (ESCOs) emerged.

The slogan that energy saving is a profitable and attractive business, in fact turned out to be a myth, and many companies were forced to abandon this direction. The reason for all this is the same: energy saving was implemented through exclusively administrative levers, and such methods cannot create a steady demand for energy services.

There was not formed a steady demand for energy savings.

Of course, the circle of executive authorities that should be directly related to energy saving was defined: the Federal Service for Supervision of Consumer Rights Protection and Human Welfare, the Federal Antimonopoly Service, the Federal Tariff Service, the Federal Service for Environmental, Technological and Nuclear Supervision, the Ministry regional development of the Russian Federation, the Ministry of Energy of the Russian Federation, the Ministry of Economic Development of the Russian Federation, the Ministry in industry and trade of the Russian Federation. Each department clearly identifies the list of authorities and defines the area of ​​responsibility, and this list of powers does not fully cover the whole spectrum of issues related to the development of energy conservation on a national scale, besides some topics are fragmented into separate parts and distributed among different departments.

The introduction of standardization and labeling of energy efficiency should also include the development of a regulatory framework, including minimum energy efficiency standards, certification and marking regulations, certification procedures, the establishment of a certification center system, and harmonization with international standards, and much more. The whole system should be built in a comprehensive manner and cover all aspects related to this topic: certification and labeling of goods, and the implementation of the energy efficiency class of buildings, and the introduction of a public procurement system taking into account the energy efficiency of the purchased products, and therefore the creation of this system should be managed from single ideological center. The document splits this topic into separate areas, strictly according to the articles of the Federal Law, and distributes them among several departments. There is no centralization of the process.

Here is an example of a failure to follow the letter of the law. Many regions, hastening to fulfill by August 1, 2010, the requirements of the law on the development of regional energy saving programs, laid in them a reduction in GRP by 40% solely due to energy savings, strictly guided by the decree, while the state programplanned in its rates only 13.5% reduction of GDP due to energy saving. As for renewable energy sources, the state program does not say a word about the methods and ways to achieve their share in the volume of electricity production up to 4.5%.

But the main thing is that the document did not identify the main body of executive power or another structure that would take the overall coordination in the field of energy conservation.

The current Ministry of Energy of the Russian Federation only functions to develop state policy and regulatory and legal regulation in the field of energy conservation and increase energy efficiency in the field of energy audits, information support for energy saving measures and improving energy efficiency, accounting for the energy resources used. Even if we add to this list a very limited topic on renewable energy sources, which appears in the Regulations on the Ministry of Energy of the Russian Federation, we still get more than a modest list of powers.

In December 2009, the Russian Energy Agency was established. The agency was established on the basis of the Russian Association of Information Resources for Scientific and Technical Development and has a fairly extensive network of branches in 70 regions of Russia and a decent staff of more than 2,000 people. It is a ready-made structure for managing the process of energy saving in the country. However, the authority of this authority for the implementation of an energy-saving program is not fully defined.

The implementation of the state policy in the field of energy conservation requires huge financial resources, both budgetary and attracted, and without competent management of the process, there can be a waste of budgetary funds and reluctance of investors to invest in energy conservation.

When it comes to government regulation based on requirements and prohibitions, the control mechanism is very important. Specific methods of monitoring the implementation of the law as an element of state regulation are needed, and these methods must have absolutely clear language, rather than abstract ones, as, for example, paragraph 7 of Article 9 of the third chapter, which reads: "The authorized federal executive body has the right to establish a list other information on the energy efficiency of goods, which should be included in the technical documentation attached to the goods, the rules for its inclusion, as well as the date from which this information is subject to t in the technical documentation ". Unfortunately, the law abounds in vague interpretations.

As for mandatory energy surveys, which were actively carried out in the late 90s and early 2000s under the leadership of the State Energy Inspection, this approach demonstrated complete inefficiency.

This inefficiency manifested itself in that, firstly: the law clearly prescribed the compulsory nature of the survey. As a result, Gosenergonadzor bodies acted strictly and formally, in accordance with the requirements of the law, to perform energy audit, after which any interest in these consumers was lost. Secondly, the obligation was determined by the volume of energy consumption, and not by the effectiveness of their use. The same thing is happening now, only on a large scale.

A distinctive feature of the current campaign is that the energy survey process should be carried out by energy audit companies that are members of self-regulating organizations. These organizations became too much (about 5000) - attracted financial benefits. But this saved their activity from formalism. In addition, due to the ease of obtaining a license for such activities, there are few real professionals among the audit companies. Worse, some new energy auditors, perceiving energy audits as a temporary way of obtaining material benefits, suggest the development of energy passports cheaply, remotely, without leaving the customer.

Self-regulation as a form of self-control is most effective. However, the process of self-regulation is effective only when self-regulation is formed naturally. Therefore, increasing the literacy and social responsibility of the population as a whole could be an important element.

The following are the most common stimulation mechanisms:

• mandatory technical standards;

• encouraging business structures to create voluntary standards;

• "energy-saving" tariffs that encourage energy saving;

• development of energy audit services;

• tax incentives;

• Benefits for public procurement;

• Coordination of research and networking between scientists and business;

• Co-financing of pilot projects for the introduction of energy-saving technologies;

• Creation of demand for energy-efficient goods.

However, on the way to the development of energy saving and energy efficiency in the country, there are a number of barriers that can be divided into four main groups:

• The need for significant amounts of initial investment;

• Lack of information;

• Lack of incentives;

• Poor organization and coordination of actions.

Before there was still the fifth barrier - a lack of technologies. However, for today, such a restriction no longer exists. The market offers a wide range of energy-efficient equipment, materials, as well as consulting services on energy saving and energy efficiency.

Let us dwell on this problem topic in more detail. The lack of motivation is determined by budget constraints, withdrawal of the savings received and relatively low tariffs.

The ability to shift the growth of costs to the consumer, cross-subsidization, the lack of means of regulating consumption - all this reduces the motivation for energy conservation and energy efficiency. Economic mechanisms are built in such a way that the recipient of energy saving is not defined and is not institutionalized. Today it is difficult to get a clear answer to the question: Who personally benefits from saving energy? The main problems are its removal in the budget and tariff processes. In such conditions, the increase in energy prices motivates not to increase the efficiency of use, but to justify further tariff increases or additional requests for budgetary financing.

*Lack of information.* Information and motivation support for the preparation and implementation of energy saving and energy efficiency solutions is poorly developed. Stereotypes of behavior ("do it like everyone else"), that is, practically do nothing to save energy, are so widespread precisely because they relieve both the search for information and the making of independent decisions.

*Lack of experience* in financing projects in the field of energy efficiency by investment banks. The requirements for allocating funds for the implementation of energy efficiency and cost reduction projects are generally much more stringent than for projects related to new construction. Most of this concerns those enterprises that are in a difficult financial situation and therefore do not have their own resources to solve problems of energy conservation and energy efficiency. For them, the test of financial sustainability is not sustainable and, therefore, it is impossible to obtain credit for development[[10]](#footnote-10).

*The lack of organization and coordination* takes place at all levels of decision-making. The problem of increasing energy efficiency is not perceived as a means of solving a wide range of economic and environmental problems. Realization of the key priority of the "Energy Strategy of Russia until 2020" - increasing the energy efficiency of the economy is not fully provided with organizational and financial resources. There is a lack of coherence in various areas of legislation: urban planning is not related to the development of energy systems; legislation on public procurement does not contain requirements for energy efficiency, etc.

It is important to organize a clear interaction with the business community, and also to involve the human factor, providing information and educational support for energy saving and energy efficiency measures at the international, federal, regional and municipal levels.

The analysis of the existing mechanisms of state intervention in the sphere of energy consumption makes it possible to identify four types of instruments of such regulation: information, economic, administrative, and state regulation in the field of constructive changes.

Instruments of information impact are various means of information support, the purpose of which is to form a deep understanding of energy consumption processes by company management. The lack of initiatives to improve energy efficiency is largely due to a lack of awareness of the potential for reducing energy consumption.

The most common way to implement this concept is the publication by state energy agencies of various information publications, manuals, recommendations, statistical reports and methodological provisions. In addition, this category of government regulation can include various procedures for certification, categorization and standardization, allowing companies to classify according to the level of energy efficiency[[11]](#footnote-11).

In general, the information impact is aimed at voluntary implementation by companies of effective energy management systems. An essential factor affecting the effectiveness of the use of information impact tools is the degree of availability of information.

*Economic instruments* include various systems of taxation, pricing, subsidies, a mechanism for trading quotas for industrial CO2 emissions, as well as lowering the interest rate for investment projects aimed at improving energy efficiency.

The use of economic instruments implies a specific time frame, as well as certain procedures for monitoring and reporting to the authorities. Economic instruments of influence, leading to increased environmental costs, motivate companies to increase energy efficiency. The effective use of economic mechanisms allows for significant changes in energy consumption, but only in the long term. However, it should be remembered that the scope of the introduction of such regulatory instruments is limited by socio-political factors, such as the development of regions, the competitiveness of the national industry, and employment of the population. In addition, the effectiveness of the application of economic regulation is largely determined by the degree of management's attention to environmental issues. An important role in ensuring the priority of environmental aspects of business is played by informational impact. Effective use of information support tools will significantly increase the effectiveness of the use of economic mechanisms of state regulation.

Administrative tools are the most rigorous mechanism of state regulation; however, their use makes it possible to obtain immediate and serious results.

As in the case of economic instruments, the use of administrative mechanisms of regulation implies not only the introduction, but also direct control over the implementation of prescribed norms. This category includes various approved state standards in the field of environmental protection, licensing of industrial production, as well as regulatory requirements established by law, the violation of which entails penalties, fines, and a ban on the implementation of activities.

# **Chapter 2. Goals and methods of energy-efficient behavior stimulation in Saint-Petersburg and Leningradskii region**

2.1 Goals and policies of energy-efficient behavior stimulation methods in Saint-Petersburg and Leningradskii region

The main institutions of power in St. Petersburg and the Leningrad Region responsible for the direction of energy conservation and energy efficiency are the Center for Energy Efficiency and Energy Efficiency in the Leningrad Region, as well as the Government of St. Petersburg
Committee on Energy and Engineering Support "Energy Saving Center"

The main goals of the institutions are:

* Material and technical support of the Committee on Energy and Engineering for energy saving and energy efficiency in the territory of St. Petersburg;
* information support on the territory of St. Petersburg of energy conservation and energy efficiency measures, defined as mandatory by federal laws and other normative legal acts of the Russian Federation, as well as those provided by the regional program of St. Petersburg in the field of energy conservation and energy efficiency

The subjects of the institution's activities in St.Petersburg and Leningrad region are:

Material and technical support for the implementation of authority to develop methodological materials and recommendations within the competence of the Committee on Energy and Engineering in the field of energy conservation and energy efficiency in the territory of St. Petersburg;

Material and technical support for the implementation of the authority to prepare draft resolutions of the Government of St. Petersburg that provide for the adjustment of the target indicators of the Regional Program, taking into account the actual results achieved in implementing the Regional Program and changing the social and economic situation.

Publication in the media of the Regional Program:

The organization of distribution in the mass media of thematic TV and radio programs, information and educational programs on measures and methods of energy saving and improving energy efficiency, on outstanding achievements, including foreign ones, in the field of energy saving and energy efficiency and other relevant information in this field.

Informing consumers about the energy efficiency of household energy-consuming devices and other goods for which the Federal Law "On Energy Saving and Improving Energy Efficiency and on Amending Certain Legislative Acts of the Russian Federation" (hereinafter - the Federal Law) establishes requirements for their turnover on the territory of the Russian Federation Federation, as well as buildings, structures, structures and other objects related to the processes of using energy resources.

Dissemination of information on the potential for energy conservation in relation to public utility infrastructure systems and measures to increase their energy efficiency.

Ensure the regular dissemination of information on the rights and obligations of individuals established by the Federal Law, the requirements for owners of apartment houses, owners of premises in apartment buildings, persons responsible for the maintenance of apartment buildings, and other requirements of the Federal Law.

Representation in the federal executive body authorized to establish and maintain the state information system in the field of energy conservation and improve energy efficiency, the necessary information in accordance with the rules approved by the Government of the Russian Federation.

 The following documents are the basis for carrying out energy saving and energy efficiency activities in St. Petersburg and the Leningrad Region.

The most important document regulating energy-efficient behavior as a state directive in St. Petersburg, Leningrad Region and in Russia on general is the Decree of the Government of the Russian Federation of 07.12.2015 "Energy Efficiency and Energy Development".

Let us list its main theses:

*1. Creation of favorable conditions for the formation of institutions and infrastructure that promote energy conservation and improve energy efficiency.*

It implies the improvement of the management system in the field of energy conservation and energy efficiency at the level of federal executive bodies, the largest companies of the fuel and energy complex of Russia with state participation, constituent entities of the Russian Federation; formation of a systematic approach to the implementation of activities (projects) in the field of energy conservation and energy efficiency in the subjects of the Russian Federation; creation of regional development institutions.

*2. Creating favorable conditions and reducing administrative and other barriers in order to attract investment in the field of energy conservation and improve energy efficiency in the Russian Federation.*

This item includes the introduction, in accordance with the established procedure, of regulatory and legal acts aimed at improving the business environment in the Russian Federation in the field of energy conservation and improving energy efficiency; Reducing administrative barriers to business in the field of energy conservation and improving energy efficiency; organization of key forums, seminars and conferences in the field of energy conservation and energy efficiency; assistance in attracting investments in energy saving and energy efficiency in the Russian Federation, as well as improving the investment climate for investors; interaction with Russian and foreign companies, authorities of foreign states in the part of intensifying bilateral investment cooperation.

*3. Information support and promotion of energy conservation and energy efficiency.*

Here we are talking about raising awareness of the public, organizations - large consumers of energy resources, federal and regional executive authorities, local governments on changes in public policy in the field of energy conservation and improving energy efficiency, on the results of its implementation; obtaining information about the best practices in the world in the field of energy conservation and improving energy efficiency.

In general, the main idea of the document is quite clear, and it can be seen that the trends and necessary techniques are generalized here, which we spoke about earlier, one way or another. Therefore, the remaining paragraphs of the decree are only enumerated.

*4. Support for activities (projects) in the field of energy conservation and energy efficiency in the regions of the Russian Federation.*

*5. Perform scientific research to save energy and improve energy efficiency.*

*6. Training of workers responsible for energy conservation and energy efficiency.*

*7. Research and development work in the field of energy conservation and energy efficiency.*

*8. Submission of subsidies from the federal budget to the budgets of the constituent entities of the Russian Federation for the implementation of regional energy saving and energy efficiency programs.*

*9. Raising public awareness of energy-saving technologies and stimulating the formation of a lean population behavior model.*

*10. Operation, maintenance and modernization of the state information system in the field of energy conservation and energy efficiency.*

*11. Implementation of educational activities in the field of energy conservation and energy efficiency.*

*12. Development of international cooperation in energy saving and energy efficiency.*

*13. Development of mechanisms for financial support for the implementation of projects in the field of energy conservation and energy efficiency.*

*14. Development of institutional mechanisms to stimulate energy conservation.*

More than three years ago, the fundamental Federal Law No. 261-FZ "On Energy Saving ..." came into force. Its practical implementation was first regulated through the Action Plan approved by the Government Decree of 01.12.2009. There have been repeated attempts to amend Law No. 261- FZ, however, due to a variety of different opinions and a large number of persisting problems in the implementation of the state energy saving policy, it is difficult to find a consensus on this issue

The Federal Law No. 190-FZ "On Heat Supply", which has been prepared and expected by the expert community for a long time, was adopted and entered into force in July 2010. He seriously changed the set limits in the sphere of heat supply, so that until now it can not be said that its implementation entered the alert line. In addition, from January 1, 2013, the new federal law No. 416-FZ "On water supply and sanitation" came into force. Together with a number of by-laws they form the framework for a huge layer of work - the development of schemes for the heat supply of cities and settlements.

The State Program "Energy Saving and Improving Energy Efficiency for the Period to 2020" (Government Order No. 2446-r dated December 27, 2010) was formed and adopted, and its implementation for 2011 was monitored, and it revealed a number of omissions and shortcomings. A draft of the State Program "Energy Efficiency and Energy Development for 2013-2020" is being finalized

Order of the Government of the Leningrad Region dated 06.02.2015 No. 44 - r "On approval of the list of measures for energy conservation and energy efficiency improvement with regard to the common property of owners of premises in an apartment building on the territory of the Leningrad Region"

Order of the Fuel and Energy Complex Committee of the Leningrad Region No. 1 of 12.02.2018 "On Approving the List of the Main Measures for Promoting Energy Saving and Improving Energy Efficiency in the Territory of the Leningrad Region"

Resolution of the Governor of St. Petersburg of 28.09.2016 N 68-pg "On approval of the scheme and program for the future development of the power industry of St. Petersburg for 2016-2020 years"

Regional programs, the development of which is mandatory for every subject of the Russian Federation and even municipalities, is the most important component driving the federal energy conservation program.

The main goal of the regional energy saving programs is to reduce the energy intensity of the gross regional product. As follows from the analysis of the energy efficiency of production of the gross regional product of Russia's regions, they all have different starting conditions, which can be seen from the significant differences in their energy intensity, estimated as a percentage of the energy intensity of the gross regional product. St. Petersburg, judging only by this indicator, is one of the most energy-efficient regions of Russia. The energy intensity of its gross regional product is almost 10 times lower than that of the country as a whole and almost 25 times lower than, for example, in the Astrakhan region. However, the cultural capital of a further increase in energy efficiency could face difficulties: fast-capacity energy-saving measures are largely exhausted.

 The regional program of St. Petersburg in the field of energy saving and energy efficiency (hereinafter - the Program) is designed to implement the Federal Law "On Energy Saving and on Improving Energy Efficiency and on Amending Certain Legislative Acts of the Russian Federation" and in accordance with Clause 2 of Article 2 Law of St. Petersburg of 02.06.2010 N 334-86 "On the delineation of the powers of state authorities in St. Petersburg in the field of energy conservation and energy efficiency."

The program establishes a list and values ​​of targets in the field of energy conservation and energy efficiency, a list of the main activities of the program and the amount of savings in primary energy resources through the implementation of the technical activities of the Program. Terms and stages of the implementation of the Program 2010-2020. The program is implemented in two stages: the first stage - in the period 2010-2015; The second stage is in the period 2016-2020. Currently, the program is in the middle of the second stage.

The main goals of the Program are to reduce by 2020 the energy intensity of the gross regional product of St. Petersburg by at least 40 percent compared to 2007, ensuring rational and environmentally responsible use of energy and energy resources in St. Petersburg, ensuring energy security of St. Petersburg.

The main objectives of the Program are

To increase the efficiency of production of energy resources through the reconstruction and technical re-equipment of the fuel and energy complex on a new technological basis;

Ensuring the accounting and control of all received, produced, transported and consumed energy resources and water;

Reduction of consumption and reduction of losses of electric and thermal energy, water and natural gas at the expense of increase of level of rational use of fuel and energy with wide introduction of energy saving technologies and equipment of high class of energy efficiency;

 Reduction by state institutions of the volume of consumption of energy resources during five years by no less than 15 percent of the actual consumption in 2009 under comparable conditions;

 Stimulation of state institutions for energy-saving measures; Involving renewable energy sources in the fuel and energy balance;

Preparation and implementation of energy-saving programs in organizations with the participation of the state; conducting energy inspections and certification of housing stock, promoting energy saving in housing;

Assistance in the implementation of investment activities in the field of energy conservation and energy efficiency;

Active involvement of all consumer groups in the process of resource conservation; Forming an effective system of promoting energy saving, developing educational programs in the field of energy conservation and improving energy efficiency, taking into account the use of foreign experience.

The most important target indicators and indicators in the field of energy conservation and energy efficiency enhancement, achieved during the implementation of the Program are:

- Reduction of GRP energy intensity by 2015 by at least 17 percent and by 2020 by at least 40 percent compared to 2007.

- The annual savings of primary energy by 2015 in the amount of not less than 3725 thousand tce. and by 2020 - 8680 thousand tce.

- The share of energy resources and water, the consumption calculations of which by 2015 are based on the readings of the metering devices, in the total volume of consumed energy resources:

electric power - 100 percent;

thermal energy - 100 percent;

water - 100 percent;

natural gas - 100 percent.

- Increase in the volume of production of energy resources using renewable energy sources and (or) secondary energy resources:

in the production of heat by 4-6 percent for the entire period of the Program's implementation,

electricity for 1-2 percent for the entire period of the Program.

- Specific value of consumption of energy resources in multi-unit buildings per unit area 32 kg. m per year for the entire period of the Program implementation.

- Specific value of consumption of energy resources in budgetary institutions per unit area of ​​34 kg. m per year for the entire period of the Program implementation.

- Total savings in energy costs by public institutions in the period 2010-2015 - 1224 million rubles., In the period 2010-2020 - 3554 million rubles. (in the prices of 2007).

- The total economy of the population to pay for energy resources in the period 2010-2015 - 9232 million rubles., In the period 2010-2020 - 23449 million rubles. (in the prices of 2007).

In St. Petersburg and in the North-West of Russia, a number of projects funded by Russian and international funds are being implemented. The total area of ​​the housing stock in St. Petersburg is 112.9 million square meters. (22 thousand apartment buildings, 1737 000 apartments), and in the Leningrad region - 44.4 million square meters.

A significant percentage of the total number of residential buildings in St. Petersburg and the Leningrad region need modernization - or, using competent terminology, in renovations. In accordance with the Rules and norms of technical maintenance of housing stock, renovation measures include, in particular, the insulation of external walls; roof and technical floor insulation; warming of basement floors; installation of meter counters and calculation of expenditures for actual consumption; automation of the thermal unit.

In 2012, the St. Petersburg Government Decree No. 405 approved a list of mandatory measures to save energy and improve energy efficiency in relation to the common property of owners of premises in an apartment building. Among these activities, the following are of particular importance:

• installation of a collective (common house) heat metering device; installation of devices that ensure the regulation of heat consumption depending on the temperature of the outside air;

• Installation of a collective (common house) hot water meter;

• installation of a collective (common house) electricity meter;

• replacement of incandescent lamps in common areas with energy efficient lamps;

• insulation of door blocks at the entrances entrance;

restoration of insulation of pipelines of the heating system and hot water supply with the use of energy-efficient materials.

The housing sector consumes 19.6% of all electricity produced in St. Petersburg, 9.3% - in the Leningrad region.

The main sources of energy in the Leningrad region and St. Petersburg are natural gas, coal, fuel oil and other petroleum products, nuclear energy. The total consumption of fuel and energy resources (population, construction sector, transport, budgetary institutions) is 15 842 thousand tce, while the total energy saving potential is 4318 thousand tce. Residential buildings in St. Petersburg are heated by hot water, which is being prepared at district heating stations, while about 80% of all heating equipment of district and local power plants have been in operation for more than 25 years and needs to be repaired and modernized.[[12]](#footnote-12)

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Priority is given to increasing the amount of energy produced by thermal power plants. The main source for the production of heat and electricity in St. Petersburg is natural gas (94% of all energy sources). Some companies, mainly medium and small businesses, are trying to introduce renewable energy sources into the St. Petersburg energy system. But these initiatives are faced with the inability to sell produced energy and connect to the network due to gaps in legal regulation regarding the installation of solar panels.

## 2.2 Methods of governmental stimulation of energy-efficient behavior used in Saint-Petersburg and Leningradskii region

The state should play an active role in implementing the strategic goals set for reducing the energy intensity of the economy. However, a significant barrier to the implementation of energy saving measures remains the impossibility of practical application of government support measures, that is, the low quality of the proposed public service [[13]](#footnote-13).

Understanding the actual picture of energy use in various sectors of the Russian Federation is only beginning to really develop and clean up from myths and inaccurate representations. Despite certain difficulties, the results of energy surveys, processing and reconciliation of the readings of the metering devices give a picture of the real losses and energy efficiency in industry, the communal complex, the grid economy, and energy sources.

Without going into the relevant industry specifics and regional subtleties, we can confidently say that the true causes of "energy inefficiency" in Russia are substantially different from in other countries (including the developed economy).

A sharp drop in efficiency in the fuel and energy complex and energy sources is mainly due to underloading, suboptimal regimes, equipment wear. The network economy also operates in non-accounting modes, is worn out and morally obsolete.

For a number of regions, energy saving is topical due to the severe shortage of energy capacity, for industrial enterprises and industrial groups - the issue of survival in new promising product markets, for large cities - the need to modernize the failed communal economy and the rehabilitation of housing stock.

In any case, the issues of energy efficiency, energy saving and the use of renewable energy sources go hand in hand with the aspects of energy security, energy supply, and hence - sustainable development.

In accordance with the order of the vice-governor of St. Petersburg I.N. Albina 03-05/2017 No. 05-15 / 17-P on the basis of the SPbGBU "Center for Tariff and Expert Support" in May-June 2017, a course of practical exercises on the application and filling of the Balance and Functional Models of the Intra-Industry Balance of Communal Infrastructure and Energy Systems of Saint- Petersburg. The specialists of the Committee on Tariffs of St. Petersburg, the Committee for Energy and Engineering Support, SPbGBU "Center of Tariff and Expert Support", SPbGBU "Energy Saving Center", "Fuel and Energy Complex of St. Petersburg", "Vodokanal of Saint- Petersburg ".

Within the framework of the course of practical training, the training participants formed intrasectoral balance sheets of resources for the following sectors: heat supply, electricity, gas supply, water supply and wastewater for 2016, on the basis of which the Intra-industry balance of communal and energy resources of the St. Petersburg municipal infrastructure system 2016 year. PSB is an economic and mathematical balance model, in tabular form reflecting the interrelations between the needs in the utilities resources of the final consumption sector and the costs of resources to meet these needs by the production sector, taking into account the actual needs of production processes, transportation, release to the consumer and maintenance of production facilities in a proper technical condition and networks.

1. PSB is formed in quantitative, energy and cost units. The WBB contains indicators of the production interconnections of the communal infrastructure systems in St. Petersburg and characterizes the quantitative equality of utility flows between the end-use groups and the communal infrastructure systems of St. Petersburg, taking into account the redistribution of flows in the process of production of communal resources and provision of public services to final consumption groups.

2. The regional stage of the All-Russian competition of implemented projects in the field of energy saving was organized, following which 17 winners from among the enterprises and organizations of the city were announced, who presented the positive experience of St. Petersburg in the field of energy saving and energy efficiency. The solemn awarding ceremony was held.

3. Three meetings of the Headquarters for Energy Efficiency and Energy Efficiency Improvement of St. Petersburg were organized with a discussion of topical issues 14 of implementing measures to increase energy efficiency and reduce energy costs in the economic complex, in the budget and housing sectors.

4. All-Russian Festival of Energy Saving # Вместе Ярче in St. Petersburg, which was attended by more than 2,000 participants from among the residents of St. Petersburg, schoolchildren and students, representatives of IOGW, enterprises of the fuel and energy complex of St. Petersburg.

5. More than 250 educational events, conferences, seminars, exhibitions, classes and lessons on energy saving, field technical tours, team games, and actions were organized and conducted.

6. Contests on energy conservation were organized and held in St. Petersburg within the framework of the All-Russian Energy Saving Festival: the regional stage of the All-Russian contest of creative, design and research works of the students "Generation ENERGY", competition for energy saving in the social network "Vkontakte". The actions on energy saving are held: "Energy saving and ecology starts with me", "The message of good", the signing of the Petition in support of the accelerated transition to energy efficient lighting in Russia and the Declaration on personal contribution to improving the energy efficiency of the Russian economy for schoolchildren, students and employees of profile enterprises.

7. Twenty-nine educational seminars on energy saving and team games for students of state educational institutions of Vyborg, Admiralty and Krasnogvardeisky districts of St. Petersburg, 20 on-site technical tours for production facilities of enterprises of the fuel and energy complex of St. Petersburg (PJSC "TGC-1", LLC Petersburgenergo, PJSC Lenenergo, PJSC FGC EES, North-West TPP, branch of Inter RAO UES of Russia, State Unitary Enterprise TEK SPb, St. Petersburg State University Lensvet, State Unitary Enterprise Vodokanal of St. Petersburg, JSC Teploset St. Petersburg ").

8. Organized and conducted 17 methodological seminars for representatives of the St. Petersburg Public Administration and state institutions on the subject of the conclusion of energy service contracts.

9. Representatives of SPbGBU "Energy Saving Center" participated in the congress and exhibition event "From import substitution to innovation and knowledge economy" and exhibition exposition of energy efficient street and industrial lighting fixtures on the basis of the Mining University of St. Petersburg.

10. The scientific and practical conference "Influence of the quality of products used in the housing and communal services on the energy efficiency of the industry" was organized within the framework of the exhibition "Housing and Communal Services of Russia" 15 (IEC "EXPOFORUM"). The event was attended by 16 speakers and 70 listeners.

11. A round table on the theme "Energy-efficient building as a unified heat and power system" was organized within the framework of the Russian International Energy Forum (RIEF-2017). 17 speakers and more than 100 listeners attended the event. Within the framework of the round table, eight construction and management organizations were solemnly awarded certificates and signatures on assigning the class of energy efficiency to MKD.

 12. A training seminar was organized on the topic "Development of energy saving programs, filling energy declarations in the GIS" Energy Efficiency "system for state institutions subordinate to the Committee on Culture. More than 100 people took part in the seminar.

Ensuring the completeness and accessibility of information on the progress of energy saving and energy efficiency measures in St. Petersburg for all stakeholders and organizations

 At the St. Petersburg Government meeting on March 21, 2017, a report on the results of the implementation of the IOGW in 2016 of the Federal Law "On energy saving ... ». According to the results of the report, in accordance with the protocol of the St. Petersburg Government meeting No. 3 dated March 21, 2017, the heads of the company were instructed to continue work on the implementation of the Federal Law "On Energy Saving ...", to finalize the inclusion of energy efficiency indicators in St. Petersburg's sectoral state programs.[[14]](#footnote-14)

 In accordance with the priority directions of implementation of the state policy in the field of energy conservation and energy efficiency, determined by the Ministry of Energy of Russia, in order to secure responsibility for improving energy efficiency in various areas of social and economic development of St. Petersburg, as of December 29, 2017, energy efficiency indicators contain government programs St. Petersburg in the areas of the system of communal infrastructure and energy, health, industry, transport. The Housing Committee prepared a draft resolution of the Government of St. Petersburg, the inclusion in the state program of St. Petersburg "Provision of affordable housing and housing and communal services for residents of St. Petersburg" targets and indicators in the field of energy conservation and energy efficiency, the planned date for adoption of the resolution - January 2018. The Committee on Education has prepared a draft resolution of the Government of St. Petersburg, which provides for the addition of subprogramme 3, Development of secondary vocational education, the state program of St. Petersburg "Development of education in St. Petersburg" with indicators in the field of energy conservation and energy efficiency, the planned date for adoption of the resolution is January 2018 of the year.

2. The timely provision of information to the state information system in the field of energy conservation and energy efficiency improvement (here in after - GIS "Energy Efficiency") is provided in accordance with the requirements of the Resolution of the Government of the Russian Federation No. 20 dated January 25, 2011 "On Approval of the Rules for Submission by Federal Executive Bodies, Authorities executive power of the subjects of the Russian Federation and local self-government bodies for inclusion in the state information Stem in the field of energy conservation and energy efficiency. " 18 3. Four TV and radio interviews and 6 publications of the SPbGBU "Energy Saving Center" in the media on the implementation of energy saving measures were organized. 4. Monthly news digests in the field of energy saving and energy efficiency improvement, newsletter on the activities of the independent testing laboratory (17 issues) are distributed among the managers of the IOGS, managing organizations and on Internet resources. 5. On the official website of SPbGBU "Energy Saving Center" on an ongoing basis, information materials, methodological guidelines and recommendations on the implementation of energy service contracts for organizations that manage the MKD, manuals for the installation, technical equipment and modernization of individual heat points and heat metering unitsenergy.

The portal of the administration of St. Petersburg provides instructions, recommendations and a list of necessary actions for the management household companies.

In accordance with the Federal Law No. 261-FZ of November 23, 2009 "On Energy Saving and on Improving Energy Efficiency and on Amending Certain Legislative Acts of the Russian Federation" and the Protocol of the Meeting of the Governor of St. Petersburg No. 25-B dated 17.02.2010 "On Implementation on the territory of St. Petersburg of the legislation of the Russian Federation in the field of energy conservation and energy efficiency "to all organizations engaged in the management and servicing of a multicommodity irnyh residential buildings Frunze district, you need to assign responsibility for energy conservation of energy consumed, as well as develop and approve a program of energy saving and energy efficiency in the jurisdictional fund.

When drafting the "Program" it is necessary to be guided by the requirements and terms of the Federal Law No. 261-FZ of 23.11.2009.

The program is designed taking into account the features of the building in operation: its condition, equipping with engineering equipment, the use of energy consumption accounting units, the calculation of expected energy efficiency, all types of consumed resources: cold and hot water supply, electricity and heat supply, building insulation (insulation restoration and insulation pipelines, repair and maintenance of closing of window and door fillings, sealing of joints of wall panels, repair of a plaster layer of facades and t etc.).

The program includes all stages of work:

- Study of the legislative basis for energy saving;

- Appointment of the person responsible for energy saving of the subordinate organization;

- drawing up a plan of measures for types of resources, types of work, the expected effect of energy conservation, the timing of the planned execution.

The preparation of this program must be carried out in the context of each building. Since, one of the main requirements of this law is the assignment to each apartment house of a class of energy efficiency, with a revision of the requirements no less than once every five years. Determination of the energy efficiency class in the process of operation of the apartment building is carried out by the executive authority (the State Housing Inspectorate), when performing state control over compliance with the rules for maintaining general property, by drawing up an act of verifying compliance with energy efficiency requirements with an indication of the energy efficiency class. Information on the energy efficiency class assigned to the building will need to be placed on the facade of each building.

  According to p.7 st. 12 of the Law, information on planning and implementation of measures for energy saving and energy efficiency improvement should be brought to the attention of owners of the premises of the apartment building, indicating the costs of their implementation, the volume of expected decrease in energy resources used and the payback period of the proposed activities. Owners of premises in a multi-apartment building must bear the costs of carrying out activities.

In addition, in accordance with the law, it is necessary to plan the energy inspection of buildings, the results of which are the energy passport of the building that will contain information:

1. On the equipment of consumption accounting devices;

2. The volume of energy resources used and its change;

3. On the indicators of energy efficiency;

4. On the magnitude of losses of resources provided;

5. On the potential of energy saving, including on the assessment of possible savings in resources in kind;

6. On the list of standard measures for energy conservation and energy efficiency.

Energy inspection should be carried out at least once in five years.

In accordance with Clause 13, Clause 13 of the Law, effective July 1, 2010, the responsibility for the implementation of activities for the installation, replacement, operation of the metering units for the resources used, the supply or transmission of which they are responsible for, is entrusted to organizations supplying water, gas, heat and electricity, at the expense of the owners of multi-apartment houses. Order No. 149 of the Ministry of Energy of the Russian Federation of 07.04.2010 proposed "Procedure for concluding and essential terms of a contract regulating the conditions for the installation, replacement and (or) operation of metering devices for energy resources used." To determine the technical capability and the conditions for the installation (replacement) of public house metering units for consumed energy resources, management household organizations should contact the energy supplier directly.

    Execution of the requirements of Federal Law No. 261-FZ of 23.11.2009 is mandatory for all organizations, regardless of the forms of management and ownership.

The law also provides for the imposition of penalties for non-compliance with requirements, both with regard to legal entities and individuals.

Moreover, the Government of St. Petersburg has created a guide for the public on energy saving in everyday life.

Saving thermal, electric energy and water is not a denial of comfort, but providing the necessary living conditions for citizens by rational use of them. In order to save, it is necessary to calculate what we consume. This is possible if you install the meters in the apartments. In apartments, it is necessary to account for electrical energy, gas, hot and cold water, and account for heat energy provided by a common house heat meter.

According to the Federal Law "On Energy Saving and on Improving Energy Efficiency and on Amending Certain Legislative Acts of the Russian Federation" of November 23, 2009, No. 261-FZ, by January 1, 2012, owners of apartment houses, owners of premises in apartment buildings are obliged to ensure the equipping of such houses with devices for accounting for used water, natural gas, heat energy, electric energy. As well as input of installed instruments and in operation (the apartment buildings in this period must be equipped with metering devices used public water, heat energy, electrical energy, as well as individual and common communal flat metering devices used in water, gas, electrical energy).

Also worth noting is that the portal marked advantages, that will be available to the public on condition of maintaining the energy-efficient behavior at home. Also detailed instructions on the introduction of technologies and methods for efficient and rational energy consumption.

As an example*, the equipment of apartment houses and apartment houses with devices of the account of used energy* **resources** will allow to pay only for the amount of communal resources you have received, To refuse to pay for a poor quality communal resource (regulatory parameters of communal resources in the provision of housing and communal services are set by GOST R 51617- 2000 "Housing and communal services."), to effectively save on communal resources.

 For the installation of common house metering devices for energy resources, it is necessary to hold a general meeting of owners of premises in an apartment building with a view to making a decision on the need to perform these works, as well as the conditions for paying for the installation of meters (without installments, payment in installments for 5 years or less installment period). The decision of the general meeting is drawn up by the minutes of the general meeting and is notified to the managing organization.

The management organization on the basis of the decision of the general meeting of owners of premises in an apartment building concludes contracts for the installation of common house metering devices for energy resources used with organizations that supply energy or their transmission and whose engineering and technical support networks have direct access to the networks that are part of the engineering and technical equipment facilities, to be equipped with devices for recording the used energy resources. Actions on the installation of meters for the use of energy resources are also available to persons who meet the requirements established by the legislation of the Russian Federation for the implementation of such actions.

The example of *saving of thermal energy* and its consecutives also can be found: .

A lot of heat is lost through window and door openings - 40 ... 50%; through the overlapping of basements and attics - 20%; through the outer walls - 30 ... .40%.

 To increase heat dissipation, radiators must be clean both inside and out. Over many years of operation, they are clogged with internal sediments so that the water does not seep (which is really warm there!). Radiators must be washed. The management organization is responsible for this.

The shelter of heating devices with decorative plates, panels and even curtains reduces the heat transfer by 10%. Painting radiators with oil paints reduces heat transfer by 8%, and zinc whitens increases the heat transfer by 3%.

To warm (and it is better to change) follows windows and doors, since the main heat losses go through them.

It is useful to cover the wall behind the radiator with heat-reflecting materials.

Before warming for the winter windows, you should carefully wash the glass. In general, this should be done more often, as it helps to save electricity on lighting.

 For the winter window frames can be sealed with paper. This should be done from the inside and in the windless weather. However, it is better to use special sealing materials. There are many of them on sale, and some are able to work for several years. They are also successfully used for insulation of entrance doors (including metal doors).

Installing low-emission thermo-reflective film on the inside of the window glass, reduces heat loss through windows by 40%.

Glazing of balconies and loggias allows to reduce the total heat loss by 10%. Double entrance doors also help to keep the heat in the house.

*Energy saving*. In an apartment the electric power is spent for many purposes, and from year to year power consumption only grows due to use of new home appliances. Home appliances become one of the main "eaters" of electricity. Electric stoves, washing machines and dishwashers, computers, home theaters and other household appliances consume an amazing amount of electricity, even in the "stand by" position (this is when the device is connected to the network and waiting for a signal from the remote control). Do not leave the equipment in "stand by" mode - use the on / off buttons on the equipment itself or unplug them from the outlet. Turning off unused devices from the network (for example, a TV, VCR, or a music center) will reduce power consumption to an average of 300 kWh per year. The mobile phone charger left in the power outlet is heated, even if there is no phone in it. This is because the device still consumes electricity, while 95% of the energy is wasted when the charger is plugged into the outlet all the time.

# Indicators of effectiveness of methods of stimulating energy-Efficient behavior in Saint-Petersburg and Leningrad Region

Analysis of secondary data supported by in-depth interviews with the organizers of energy-efficient behavior stimulation in St. Petersburg and Leningrad region allowed to reveal the following methods depicted in Table 2 and classify them based on formats.

Table 2. Division of methods an formats of energy-efficient behavior stimulation used in In St. Petersburg and Leningrad Region in 2018.

|  |  |
| --- | --- |
|  Main Methods and Formats | In St. Petersburg and Leningradskii Region (2018) |
| **Public event**- Festivals- Conferences/Congress- Forums- Exhibitions- Competitions/ contests | - 2 Energy saving Festivals #Вместе Ярче (SPb and Priozersk,( L.R.)- International Forum "Green Energy" (SPb)- Petersburg International Gas Forum 2018 (SPb)- International Gas Forum. Exhibitions "Lighting engineering., Energy efficiency. (SPb)-International Forum "Green Economy"(SPb)- International Specialized Exhibition "Boilers and Burners"(SPb)- Russian International Energy Forum / RMEF 2019(SPb)-International Specialized Exhibition ENERGY SAVING AND ENERGY EFFICIENCY. INNOVATIVE TECHNOLOGIES AND EQUIPMENT 2018 (SPb)-Congress "Energy Efficiency 21st Century"(SPb)- IV St.-Petersburg All-Russian Youth Ecological Forum. (SPb)-conference on improving the energy efficiency of apartment buildings- Regional competition of school projects "Energy and Habitat" for 2017-2018 academic years -Contest from the energy saving center SPb #energysaving for the most creative photo |
| **Professional development programs*** Seminars
* Lessons
 | * The Center for Energy Saving conducts 18 training seminars on the implementation of energy service contracts in the budget sphere
* the lesson and competition for pupils of school № 522 of the Admiralteysky district took part in the team game "Energy saving and ecology begins with me"
* Lessons in public schools in SPb
 |

Competitions, forums and festivals have a primary purpose of stimulation of the Leningrad Region and St. Petersburg at the regional and municipal levels,

* implementation of energy efficiency and energy saving projects in various sectors of the economy and the budgetary sphere;
* Mass involvement of new participants from the business community and the public sector in the solution of the task of increasing the energy efficiency of the Russian economy;
* stimulation of promotion of energy saving lifestyle among the population; - increase of the culture of energy consumption, careful attitude to energy resources, ecology, energy of the future;
* identifying and facilitating the implementation of technological solutions that make best use of the energy saving potential;
* identification of the best projects aimed at informing the end user about energy efficiency;
* the formation of a database of successful cases implemented in the Russian Federation to improve energy efficiency and energy conservation, to disseminate good practices in all regions of the country.

The following effectiveness indicators of energy-efficient behavior promotion have been found as a result of in-depth interviews of promotion managers, working in the State Public Institution of the Leningrad Region "Center for Energy Saving and Energy Efficiency Improvement". The analysis is summarized in Table 3.

1. Press rating

The most "ancient" but still popular primary quantitative indicator. There were times when some managers evaluated the effectiveness of PR-work on the thickness of the stack of weekly press clipping. Today, before such a mockery of common sense, no one is rolling down, but the figure with the number of publications to this day affects most of the leaders in some magical way. Today, several more qualitative and objective tools appeared on the basis of an analysis of the general array of publications, but the press rating, as the most simple and understandable criterion, is still the leader in popularity.

Example of Method of counting: Electronic media libraries / Independently through Yandex.News / Google.News

2. The citation index

This KPI is derived from the press rating and belongs to the category of quality. However, this term can hide completely different in format and design indicators. For example, in the Medial system, the "Index of quoting" in relation to the media is an indicator of the number of references to publication in other publications, taking into account also their influence. Today use the so-called news or event citation index, which shows the average number of reprints of the company's official messages (news / press releases) for a certain period. With the help of this indicator, it is possible to record the media's interest in certain news of the company, as well as the effectiveness of the company's news distribution by the press service.

3. The MediaIndex

Today this is probably the only generally accepted and generally recognized by the PR community an integral indicator that assesses the overall effectiveness of the PR activity of the event in the media space. The calculation of the mediaindex is based on three main factors: the citation of the object and its speakers, the visibility of the object, the tonality of the messages in relation to the object. In PR-practice, this is still the only generalizing indicator, which with sufficient accuracy shows the overall effectiveness of PR. Among its shortcomings, you can specify, first, the incompleteness of the Medial database, secondly, the lack of comparison with companies that are not objects in the system; third, the confidentiality of the MediaIndex calculation formula, which the company protects from its third-party eyes as its intellectual property.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | Festivals | Conferences | Forums | Exhibitions | Seminars | Lessons | Articles | TV programs | Interviews |
| Number of participants | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | NA | Yes  | Yes  |
| Number of events | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | NA  | Yes  | Yes  |
| Number of new projects |   | Yes  | Yes  | Yes  |   |   | NA  |  NA |   |
| Number of participating companies | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  |
| Reducing energy consumption in the area | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | NA |  Yes |   |
| Funding | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  |  Yes | Yes  | Yes  |
| Donation | Yes  | Yes  | Yes  | Yes  |   |   | NA  |   |   |
| Press rating | Yes  | Yes  | Yes  | Yes  |   |   |  Yes | Yes  | Yes  |
| Citation index |   |   |   |   |   |   | Yes  |   |   |
| Media Index | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  |   | Yes  | Yes  |
| Site Attendance | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  |
| Media Outreach  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  |   | Yes  | Yes  |
| Project indicators (leads, event participants, calls, feedback, etc.) | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  |   | Yes  | Yes  |
| Subjective assessment of managers | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  |

1. Site Attendance

With the growth of the importance of the Internet, the importance of the Internet representation of events has grown in the daily life of consumers. Since in most cases, PR specialists are responsible for filling out the online representation with content, then the site's attendance becomes an important KPI. In this case there is a splicing of advertising and PR in the organizational structure of the event.

Example of a counting method: counters attendance Liveinternet, Mail.ru, Rambler, GoogleAnalytics, the organization's own IT platform.

1. Media Outreach

One of the oldest quantitative indicators of the effectiveness of events also came from the advertising market. With the development of the Internet, its calculation has ceased to be a complex procedure, accessible only to analytical and statistical agencies.

Now, when approximately 85% -90% of the entire media space is made up of electronic resources, the Media Outreach count was made available to all comers. Among recent changes in the market, it can be noted that the Medialogiya system has automatically implemented it, although so far only with the use of object search and in a generalized form. The system does not yet show the potential audience of a specific message.

Method of calculation: Based on the statistics of monitoring agencies.

1. Project indicators (leads, event participants, calls, feedback, etc.)

For most companies working on the mass market, the issues of the number of publications or citations of the management play such an insignificant role that often PR as a separate direction is not there, but merges into a single marketing / advertising function.

However, where PR still remains more or less a separate direction, more stringent economic indicators are used to assess the effectiveness of PR. In particular, one of the main activities of a PR man in such companies is event-management, within which the company conducts direct contact with customers, therefore, the KPI of the PR man is the number of participants in the event, the number of applications for the product / service, the number of reviews of the event, attendance page of the event, etc. Where PR is a function of marketing, everything is aimed at extracting a specific material benefit "here and now", so the technology of PR work in the company is also sharpened to stimulate the straight interaction with the end user, i.e., for sale.

Method of calculation: call-center, site, counters, registration forms at events,

1. Subjective assessment of managers

Even when organizing large, mass events it is necessary to take into account that all this is done and organized by people, therefore personal subjective assessment of the bosses still remains important, even if the majority of the listed indicators are used.

# **Chapter 3. Empirical investigation of stimulation methods effectiveness**

# 3.1. Empirical analysis

The empirical analysis consisted of two steps: over 40 interviews were gathered from participants of a local Energy saving festival in order to determine areas of improvement of energy-efficiency stimulating methods implemented by St. Petersburg and Leningradskii region authorities; then, an online survey of 128 of St. Petersburg and Leningradskii region residents has been conducted to determine the more effective methods of energy-efficiency behavior stimulation for different groups of the population.

**In-depth interviews**

A study was conducted and interviews were collected directly on the energy saving festival and ecological forum.

The pilot poll was held at the Energy Saving Festival #Вместе Ярче in the city of Priozersk, Leningrad region on September 3d. The festival was organized by the State Public Institution of the Leningrad Region "Center for Energy Saving and Energy Efficiency Improvement". 10 interviews were collected.

Then the main research was conducted at the Festival of Energy Saving #Вместе Ярче, the program of which was integrated with the St. Petersburg All-Russian Youth Environmental Forum. The events took place in St. Petersburg on September 26 in Mikhailovskaya dacha - GSOM SPbU campus in Strelna.

All-Russian Energy Saving Festival #Вместе Ярче, is supported by the Ministry of Energy of Russia, the Ministry of Education and Science of Russia, “Rosmolodezh”, the Housing and Communal Services Reform Fund, the Ministry of Culture of Russia, the Roskognress Fund and is open to participate in the organization of federal, regional, municipal authorities, business, public and educational organizations

The purpose of the Festival #Вместе Ярче: popularization of energy saving lifestyle and introduction of modern energy-saving technologies among the population. "A useful holiday" was a popular name for the Festival in the regions of Russia. In September-October 2017 in 80 regions of the country in support of the Festival there was a social campaign to promote an energy-saving lifestyle: schools and kindergartens held thematic lessons and weeks of energy conservation, themed quizzes, quests, essay contests for schoolchildren and youth, meetings of power engineers with students , Open Days at the enterprises of the fuel and energy sector, corporate competitions rac. proposals in the field of energy saving, charitable actions to replace traditional lamps with energy-saving ones, etc. Including in 67 subjects of the Federation, the Festival was held in the format of a family city holiday.

More than three million schoolchildren, tens of thousands of preschool children across the country participated in thematic events in their educational institutions, hundreds of medium-special and higher educational institutions joined the festival.

**Results of the pilot study**

Following the interview, several groups of participants were singled out:

* The pupils of the schools-children of the St. Petersburg schools participated in the event (they prepared creative issues on energy saving, participated in contests from invited organizations, and were invited to lectures on energy saving)
* Groups of kindergartens. I managed to interview the director of the kindergarten, who brought 7 groups of preschoolers to the event. According to her, it is very important to instill a culture and energy conservation from childhood, to inculcate love for nature and teach children the right energy-efficient behavior and care for nature. "
* Students-many students learned about the Festival and about the forum from the universities where they study. Part takes the otstie in the conference, preparing reports, part came to lectures on energy conservation and ecology.

However, it is worth noting that a third of the respondents were students who were forcibly and organically sent from the universities to visit the Festival # Together. On the one hand, the participants admitted that they do not care about this event, and that this is part of the compulsory program at the institute, but on the other hand, forcing them to attend such events can be useful for participants, it may be a chance for them to learn about energy savings a little more , even if they had no previous desire for this.

**Survey design**

A survey was conducted to study the attitude towards energy saving and energy-efficient behavior of the population. 128 people took part in the survey. A number of questions were asked about the participants' attitude to energy efficiency and energy saving.

The goals of the online survey can be summarized as:

1. To evaluate general understanding of energy-efficiency related problems and their importance
2. To estimate awareness of energy-efficiency stimulating methods (festivals, forums, conferences, seminars, classes, social media ads)
3. To estimate the effectiveness of types of energy-efficiency stimulating methods
4. To determine areas of improvement of energy-efficiency stimulating methods implemented by SPb and LO authorities
5. Determine the more effective methods of energy-efficiency behavior stimulation for different groups of the population.

Key issues, which were researched through online survey aimed to investigate four main antecedents and indicators of energy efficient behavior: awareness about energy saving, engagement into energy saving activities, motivation for energy saving activities, assessment of the state activities to stimulate energy efficient behavior.
Awareness about energy efficient behavior were operationalized through several types of questions which focused on:
- Self-reported energy-efficient behavior (e.g. “I believe I am well-informed about energy-saving”)
- Questions to test the actual awareness and its potential biases (e.g. “What is energy saving?”)
- Questions about the amount of information people are getting from different sources (e.g. workplace, internet, events, etc.)
Engagement into energy saving activities was aimed to get an understanding of people’s actual involvement into energy saving activities. One of the assumptions made was that most of usual activities participants do on a daily are not perceived as an energy saving ones due to lack of awareness. The research showed that the majority of participants actually participated in energy saving activities by doing simple everyday routine.
- About 90% are switching off the lights leaving rooms,
- Over 80% are using energy-saving bulbs
- 76% are installing different types of meters
- About 35% are buying energy efficient appliances and equipment, utilizing batteries and install thermo insulation

Even 18% of respondents are installing the motion sensors for lightning systems
All this analysis shows that there is a high level of practical energy saving behavior of respondents. However, 50% of respondents noticed that if they feel any discomfort from energy saving activities thy immediately stop doing this. It is a demonstration of the lack of “energy saving behavior consistency”. The antecedents are related with the absence of a habit and supportive context.
The supportive context is represented by respondents’ relationship with information: less than 50% had any kind of information about energy saving, about 40% of them participated only in international activity “The Earth Hour” which proposes a low engagement and is not supporting the habit. Whilst roughly 40% did not get any information.
Motivation for energy efficient behavior were tested by imitation of case where respondents could choose between energy efficient level of machine machine to buy. It showed that people still have practical and tactic approach for buying appliances and even the brand was more important that the class of energy efficiency. This supports the argument about the absence of a context which would help people to see the energy saving behavior as a efficient strategy not only for environment, but for themselves as well.
Final part of the questionnaire also supported the notion of awareness lacking. Respondents tended to evaluate the activities of city administration in the field of energy efficiency highly but couldn’t come up with any examples of those activities and didn’t demonstrate the interest to suggest the ways to improve.

**Sample description**

The poll was posted on the social network Vkontakte. Most of the respondents (72%) are female respondents. The age range of participants is 18-59 years. More than 65% of the respondents are employed, 30% are university students, 5% are pensioners, housewives, students of the school.

About 17% of the polled users believe that energy saving concerns mainly electricity savings, 26% believe that it is about saving electricity, water and heat. The majority (60%) look at energy conservation globally, believing that it refers to the careful and rational use of energy resources in general. That reflects the fact that more than half of the respondents correctly understand the subject of the research.

It is worth mentioning, that the topic of energy saving has recently been discussed quite often in Russia. Resource consumption is insisted on by scientists, officials, and business representatives. Ordinary citizens are also involved in this process, at least by installing meters and switching to energy-saving light bulbs. Nevertheless, support for energy conservation has not yet found sufficient understanding in Russia.

73% of respondents consider themselves to be economical in the expenditure of energy resources, and 9% are very attentive to this process. 64% of respondents note that they save energy resources depending on the situation. 7% admitted that they did not save much. The most popular methods of saving were the habit of "turning off the light" (89%), the use of energy-saving light bulbs (81%), and the use of counters (59%) - electricity meters (91%) are the most common among survey participants.

51% of the respondents admitted that they usually do not experience discomfort while saving energy resources, but they immediately stop saving if there is discomfort. 29% of respondents noted that they always economically expend energy resources and do not experience discomfort. 13% of respondents admitted that the economy leads to discomfort, and therefore they do not save. 4% admitted that they do not think about saving resources, because they can pay for any of their consumption. On the culmination of the question of what would motivate them to save energy more, 90% of respondents said that significant monetary savings.

23% of respondents said that more complete information about what the irrational use of resources leads to and how their energy-efficient behavior can affect people's lives could serve as a push in the direction of increasing energy efficiency.

Respondents were asked how they receive information on energy conservation and energy efficiency. 40% have written that now and earlier they received information mainly from the media, mostly via the Internet. Almost 30% noted that they did not receive any information on this topic. 20% of respondents say that they have spoiled information about energy saving at work places, studies, as well as from their close associates (family, friends, and colleagues). Less than 1% said they receive information from literature and events. However, according to the survey results it is clear that more than 70% participated in festivals, forums, and conferences related to energy saving, attended thematic exhibitions, lectures and seminars.



In the last part of the survey, the respondents were given a hypothetical situation, where they were offered to imagine they were buying a new washing machine and were put before a choice of two variants: buying a class A machine or a more expensive one – A++ class (energy-efficient). Even though 86% of the respondents indicated that price is the main determinant of such choice, 60% of respondents still chose the energy-efficient machine.

However, it is worth noting that almost half of the respondents (43%) stated that they would not like to receive more information about saving energy resources. On the question of what can be done to improve the effectiveness of the activities of the Leningrad region and St. Petersburg. 90% of the respondents said that more people should be informed and created. 74% expressed a desire to instill and form a culture of energy conservation and energy-efficient behavior from childhood.

Respondents' answers to the survey

|  |
| --- |
|  |
| "To carry out these activities from school in order to instill in children an interest in energy conservation" |
| "More collection points for separate garbage. And education about environmental behavior from kindergarten " |
| "Agitation of attending such events in schools, universities, other educational institutions" |
|  |
| "Advertising in the metro; various ways to attract guests to these events: an interesting program, famous speakers, events in the context of festivals (for example, VK-Fest, «Oh, da, Eda»), outdoor venues, in the city center " |
| "Popularization in an accessible and convenient format, Justification of benefits in figures and on specific examples, support for projects, start-ups in this area, popularization of student work and research on this topic" |
| "It seems to me that people would be interested in this issue more specifically if at the events they talked about the personal benefit of everyone." |
| "Create social advertising with promotion of energy efficiency" |

**Discussion**

Judging by the answers, we can conclude that today the population of St. Petersburg and the Leningrad Region is poorly informed about the energy saving problem on average. Despite the fact that the majority attended various kinds of events, their effectiveness is called into question. We see frank contradictions in people's answers. So, despite the fact that 43% answered in the questionnaire that they do not want to receive information, 90% wrote that the information is necessary. From that the following set of recommendations can be given aimed at improving the methods of evaluating the effectiveness of energy-efficient behavior stimulation in St.Petersburg and Leningradskii region:

1. The sponsors of - festivals, conferences, exhibitions, and competitions should decrease the importance of such effectiveness indicators as the number of participants, number of events and number of new projects as participation doesn’t guaranty that the spread of the message and understanding of the promoted cause. Moreover, the organizers of such events appear to be prone to opportunistic behavior, collaborating with schools and universities to make students attend without explaining why they do this under the promise of punishment if they don’t or the opportunity to skip classes if they will. Instead, such indicators as user-generated content by the participants, there positive reactions and reviews about the event should be measured by means of social media listening and conducting surveys after the event.
2. Although it appears that that many people in general understand the importance of energy-efficient behavior, there is a lack of understanding what it really is. The practices are commonly defined by respondents only partly, thus crucial elements become neglected. Communication of the importance of energy efficient behavior must focus on showcasing a broad range of practices instead on merely focusing on one or two things. Speaking about the indicators used to assess the effectiveness of energy-efficient behavior, the methods which include measuring the number of energy-efficient behavior practices (e.g., number of energy-efficient light bulbs bought) should also take into account the scope of practices performed by individuals or companies.
3. The individuals, which took part in the survey although had a semi-decent understanding of the topic, expressed troubles in assessing the relation of the concept of energy-efficiency to their daily life. Showcasing the economic benefits and real life practices of being an energy-efficient individuals are necessary to improve the effectiveness of promoting the cause. Thus, we suggest an additional indicator – the number of times individuals has calculated the long-term benefits of their own personal energy-efficient behavior or took part in an experiment showcasing how energy-efficient actions impact their life during lessons or educational seminars.
4. Many people appear to already engage in energy-efficient behavior without realizing that they do so. With regard to the previous recommendation, this can be used to emphasis the ease of such practices by communicating to energy consumers information of how what they are already doing relates to energy-efficiency, thus stimulating them to engage more in the same practices (and tell about them to others) rather than try to engage them in practices, which are perceived as totally new to the.

## Conclusion

The aim of this work was to determine directions of improvement of methods of evaluating the effectiveness of energy-efficient behavior stimulation. To achieve it, in the study, the definition of energy-efficient behavior of population has been clarified as a strategy of use of energy consumers and the principle of efficient consumption. The main indicators of energy-efficient behavior of population were defined as the following elimination of irrational use of energy resources; elimination of energy losses; increasing the efficiency of energy resources.. It has have been categorized to object of civil law regulation associated with the reduction of property costs when using traditional energy sources and the total volume of their use, as well as activities to increase the use of *alternative energy source;* energy conservation as an object of civil law regulation is, first, entrepreneurial activity, since the realization of energy is a kind of business; , energy conservation is an activity in the basis of which there must be a balance of private and public interests in the field of energy supply; energy conservation is an integral element of the legal mechanism of energy efficiency as a holistic system for supporting or stimulating civil law actors in order to provide energy services and other means of increasing energy efficiency in the use of energy sources. energy conservation as an activity is realized mainly within the framework of relations arising from civil obligations.

Analysis of policies descriptions, analytical documents, official reports and reviews on official media of governmental organizations allowed to determine the goals of Saint-Petersburg and Leningrad Region related to energy-efficient behavior stimulation as material and technical support of the Committee on Energy and Engineering for energy saving and energy efficiency in the territory of St. Petersburg and information support on the territory of St. Petersburg of energy conservation and energy efficiency measures, defined as mandatory by federal laws and other normative legal acts of the Russian Federation, as well as those provided by the regional program of St. Petersburg in the field of energy conservation and energy efficiency

In-depth interviews with promotion managers, working in the State Public Institution of the Leningrad Region "Center for Energy Saving and Energy Efficiency Improvement" and analysis of secondary data from official websites and reports allowed to define the main methods of stimulating energy-efficient behavior used in Saint-Petersburg and Leningradskii region.

Then, an online survey of 100 of St. Petersburg and Leningradskii region residents has been conducted to determine the more effective methods of energy-efficiency behavior stimulation for different groups of the population. Analysis of indicators of effectiveness of methods of stimulating energy-efficient behavior in Saint-Petersburg and Leningradskii region allowed to distinguish areas for improvement

In the end of the study recommendations were made on the directions of improvement of evaluating the effectiveness of energy-efficient behavior stimulation used in SPb and Leningradskii region, which can be summarized as the following: for event-type promotions – to change the indicators of effectiveness from based on the number of participants to participants involvement, understanding of the cause and word of mouth; for educational events – to change the focus from informing about the cause importance to informing and practicing first-hand the relevance of such practices; to use surveys and market research in order to better understand what energy-efficient behavior individuals already engage in to use this information to modify the informational messages.

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