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INNOVATIVE TECHNOLOGIES IN ENERGY AND ENERGY CONSERVATION

Introduction. The energy industry is the most important component of the Russian economy. Currently, the energy industry has low energy efficiency, which has a detrimental effect on energy equipment. In the near future, this industry will undergo significant changes associated with an increase in the efficiency of the country's energy sector. All developed innovations in the energy industry are aimed at reducing energy losses. The development of innovations in this area is one of the primary tasks of our country. The assimilation of new technologies requires considerable investment, which determines the importance of assessing their effectiveness. But the introduction of effective technologies is necessary and imperative. Thanks to this implementation, important environmental problems will be solved, because with their help it is possible to efficiently use waste, save gas, fuel, water.

Main part.

Innovations in the field of energy saving are new technologies for the production and use of energy, which contribute to its preservation and conservation as a result of using the results of scientific and technological progress. Energy saving innovations consist of certain parts:

1) the technological part is determined by the number and level of domestic energy saving equipment.

2) the economic part is determined by the feasibility of introducing certain technologies

3) the social component determines preparedness of employees for the implementation and implementation of prepared plans and projects.

4) the informational part is an important component, since the collection of information requires significant efforts.

As a result of previous tests and analyzes, the following methods of saving the country's energy resources are identified:

1) improvement of the outdated equipment

2) modernization of district heating

3) it is necessary to reduce energy losses in power lines

4) to normalize the capacity of certain types of electrical units

There are many ways to reduce energy costs, but not all are applied in practice for one reason or another. Many methods have been developed to improve the energy industry. These methods should increase the efficiency of

energy-saving technologies through the use of mineral raw materials and alternative sources. Reconstruction of equipment is the most important modernization in the coal industry. Electro-technological modern installations allow using raw materials without receiving waste, which has a positive effect on the state of the environment. But with nuclear energy, everything is much more difficult, it is very difficult to build new equipment and technologies, because this industry is very dangerous and requires a lot of time and research in order not to make mistakes and not cause global catastrophes. At present, it is very difficult to dispose of atomic waste and fuel discharges. A lot of work is being done in the field of using new, non-standard sources. A special role is given to hydrogen fuel sources, which will be very efficient. Special installations on fuel cells are also the most important modern technologies, because they are absolutely safe for humans, since the product of their combustion is ordinary water. The creation of an environmentally friendly source of energy is at the stage of development and active research in this area. To create these energy sources, nano technologies are needed, which are still poorly developed and little studied.

There are modern technologies to reduce the energy intensity of the gross domestic product in the energy sector:

1) Use of waste heat from various technologies. The use of this type of heat is the most effective and promising resource-saving method. This method allows you to reduce the consumption of thermal energy by 6 times. This is a very energy efficient measure and is quite common nowadays.

2) Solar heating technology. Renewable energy sources include solar energy. The use of this technology in our country is not widespread, but in China it is the main technology for generating heat. This technology is seasonal and inconvenient, because in our country it is not widely used.

3) Use of heat pumps. The supply of heat to premises using heat pumps is a dynamically developing technology. Heat pumps have high power and run smoothly, which is very beneficial for the cold regions of our country. When using these types of pumps, no additional power is required, which is very beneficial in economic terms.

Clear examples of the introduction of new technologies are LED lamps, which consume a minimum amount of electricity. These lamps are beneficial to use in areas where zone electricity tariffs are in effect. Now a very popular system called "smart home". Thanks to this system, energy costs are reduced. This system consists of a sensor that reacts to movement, during which the light turns on or off.

Modernization in the field of electricity continues to this day, many new technologies reduce energy costs[3]. For example:

1) Utilization of associated petroleum gas is one of the most important tasks in the oil industry. New power plants use associated petroleum gas as energy, resulting in the rational use of all components.

2) Installations for generating clean energy. Modern energy is based on the combustion of minerals, resulting in a lot of emissions that pollute the environment. In order to reduce the level of pollution, modern energy saving technologies have been put forward.

3) Vacuum and SF6 circuit breakers. These switches meet all modern standards and provide dielectric strength, which is very important.

The development of energy in each country depends on economic feasibility. In the modern world, much attention is paid to energy security. Due to the increase in the population of the country, the amount of energy consumed is also growing, so scientists began to think about the exhaustion and safety of these resources in our country. Modern enterprises are trying to switch to non-hydrocarbon technologies, in particular the renewable energy sector. Advances in science and technology are offsetting the increase in energy consumption. Nuclear energy, renewable energy sources, oil shale and much more are widely used. All this suggests that the depletion of fossil fuels can be postponed for a long period. It may take 30 years to develop a new infrastructure for using new types of energy, since energy is a very complex sector of the economy of any state, including Russia. From all that is now known about energy, the following assumptions can be made:

1) by 2050, traditional hydrocarbon energy resources will remain a priority and will be highly popular with enterprises

2) in the next 20-30 years the existing energy technologies will be improved, and there will also be a gradual modernization of equipment and units used in modern energy.

3) a transition to a new stage of energy development is possible - this is a transition to alternative energy sources of the second order.

4) in connection with the development of alternative energy sources, the demand for hydrocarbon raw materials will fall.

5) with the transition of the world economy to a higher technological stage, the share of using alternative energy sources will increase, and the use of oil, gas and coal will fall by 50-60%[1].

Only competent state regulation of spontaneous processes in the field of Innovative Energy can effectively accelerate them, increase their efficiency, both for the state itself, society, and for end consumers of energy. In any case, in our understanding, the formation of the IE market is an objective, inevitable process, therefore, the earliest possible actualization of this topic will make it possible to derive the greatest benefits[4]. Thus, the directions of the state's activity should be carried out in the following areas:

1) creation of a regulatory framework in which the whole range of developments in the energy sector will be

2) creation of its own macro program

3) activate public interest in this problem

4) overcoming the mental barriers of society

5) conducting various types of research and development

6) preparing a strategy for transition to a new technological level

7) creation of an expert community

The effectiveness of the recommendations is the development of the macro program itself, which includes the preparation of a strategy for the transition to a new technological structure in the economy, optimizing its socio-political consequences; creation of a regulatory and legal framework that provides real government support for the entire range of development of renewable energy sources and regulates this market in detail. Moreover, in view of the specificity of this topic, a powerful resource for modernization should be laid in the legislative framework; determination of priorities in relation to the types of non-traditional energy. Correlation of these priorities with the characteristics of the constituent entities of the Federation; overcoming the mental barriers of society that hinder the deployment of a complex of measures of the macro program.

Conclusion. The active development of energy efficient technologies allows the modern world to solve the most important issues of the electric power industry. The energy sector must satisfy the details of the population first and foremost. Also, the energy sector must become more environmentally friendly. Emissions and waste should be reduced due to the development of new technologies and innovations. Now there is a high interest in renewable energy sources, as it is very efficient and has a huge potential for further development. The state should monitor the level of development of energy-saving technologies, since this is the primary basis for the development of a modern state.

References:

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3. Decree of the Government of the Russian Federation No. 340 of 15.05.2010, "On the procedure for establishing requirements for programs in the field of energy conservation and energy efficiency improvement of organizations carrying out regulated activities."

4. Decree of the Government of the Russian Federation No. 318 of 25.04.2011, "On approval of the Rules for exercising state control over compliance with the requirements of legislation on energy saving and on increasing energy efficiency and on amending some acts of the Government of the Russian Federation."

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