THE ROLE OF ENERGY IN THE SCIENTIFIC AND TECHNICAL DEVELOPMENT OF SOCIETY.

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Abstract: The development of human society and its achievements is directly related to the level of production and the creation of necessary material conditions for people's lives. Scientific-technical and social progress usually occurs simultaneously with the increase in consumed energy and the adoption of new, more efficient types of energy. This article discusses the role of energy in the scientific and technical development of society.

Key words: power, energy, hydroelectric power plant, thermonuclear energy.

The energy consumed in modern cars is very large. This can be expressed on the basis of the following comparison. Even if all the able-bodied population of the world worked with full physical strength for 8 hours every day for a year, they would not be able to produce one hundredth of the amount of energy produced in modern thermal and hydroelectric plants. Energy consumption will continue to increase, keeping up with the increase in production.

Economic progress can only be accelerated by increasing the energy consumption and the level of production based on physical and perfectly automatic controlled machines. The need for energy has continuously increased. This, in turn, created the need to search for new energy resources, to develop new methods of converting energy from one type to another. At present, it is traditional to use different types of energy - solar energy, chemical energy of organic fuel, mechanical energy of rivers, seas and oceans, wind energy, nuclear energy produced by the fission of heavy nuclei. We observe that the use of all types of energy resources has increased intensively. Here, we see that the relative growth of coal use has been flat from year to year, making up about 30% of the total energy resources used at the end of the 20th century, while the relative growth of gas and oil use has increased sharply. The main reason for this is the low cost of their long-distance transmission and use. Over the past two centuries, the world's population and energy demand have been growing rapidly. At the same time, the population of the globe has increased six times, and the demand for energy has increased five times per capita.

Such an intensive growth of the energy demand requires the search for new reserves of energy resources, their effective use, and the identification of alternative energy sources. At the present time, the potential of all energy resources available on the earth is estimated in the following amounts in the conditional fuel unit: - chemical energy of organic fuel - 1.77*1013; - nuclear energy - 0.67*1014; - thermonuclear energy - 1.22*1017; - geothermal energy - 1.0*1014; - energy of the sun falling on the globe - 0.82*1014; - energy of rivers (one year) - 0.4*1010; - wind energy (one year) - 2.1*1011; - bioenergy of forests (one year) - 0.5*1010; - flow energy (one year) - 0.86*1014. In the course of its development, the energy system that produces electricity and thermal energy is influenced by a number of other systems and, on the contrary, affects them.

The construction of the energy system and its working conditions are directly related to natural factors (for example, the availability of water bodies, the geographical location of energy resources and the location of consumers). The state of the biosphere, the degree of pollution associated with the operation of energy devices creates certain restrictions on the technical characteristics and operating conditions of the energy system. Management of the energy system is carried out taking into account not only its impact on the biosphere, but also the social functions of the fuel supply system, industry, transport and other factors. Energy is one of the sources that have a negative impact on the environment and human health. Therefore, the development and introduction of technologies to reduce its impact is one of the most urgent issues facing scientists and specialists in this field today.

Use of energy resources Energy is the general basis of natural phenomena, culture and human life. At the same time, energy is a quantitative indicator of various forms of matter movement. Energy by type is chemical, mechanical, electrical, nuclear, etc. is divided into Energy that can be used by humans exists in material objects called energy resources. All kinds of energy resources are considered as primary energy resources, which have a large number of users in practical needs. They include organic fuels such as coal, oil, gas, as well as thermal (geothermal) energy of rivers, seas and oceans, sun, wind, underground. Energy resources are divided into renewable and non-renewable types. Renewable energy resources include energy resources that are continuously regenerated by nature (water, wind, etc.). Non-renewable energy resources include energy resources that were previously concentrated in nature, but do not appear under current geological conditions (for example, coal). The energy obtained directly from nature (fuel, water, wind, geothermal energy, nuclear energy, etc.) is primary energy, and the energy created as a result of its transformation by man in special devices is called secondary energy converts into electricity. Obtaining the required type of energy and providing it to consumers is carried out in the process of energy production. This process can be divided into five stages. 1. Extraction and concentration of energy resources: extraction and preparation of fuel, creation of pressure with the help of hydrotechnical facilities, etc. 2. Transfer of energy resources to converting devices: this is done by transportation on land and water or by driving water, gas, etc. in pipes. 3. Change of primary energy to the type of energy (usually electricity and thermal energy) that is convenient for distribution and consumption in secondary existing conditions. 4. Transmission and distribution of converted energy. 5. Consumption of energy in transferred and modified forms.

References:

1. Steven W. Blume, Electric power system basics, USA, 2007.
2. Karimov R.Ch., Rafikova G.R. Basics of electrical safety. Study guide. -T.: Spectrum Media Group. 2015.
3. Rules of safety techniques in the operation of electrical devices. "Ozdvenergonazorat" state inspection on control in electric energy. - T.: Work. 2016.
4. Instructions on providing assistance before a doctor to the victims of accidents that occurred during the service of electric power equipment. "Uzdavenergonazorat" state inspection on control in electric energy. - T.: Work. 2016.