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USE OF HEAT AND ENVIRONMENT ENERGY RADIATION BASED ON EXERGY ANALYSIS FOR ENERGY SAVING IN THE AGRO-INDUSTRIAL COMPLEX AND HOUSING AND COMMUNAL SERVICES

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Is well known prospects of the use of heat protection and solar energy for direct conversion into electricity it or in the process of photosynthesis in plants. Entropy analysis in these cases is fundamentally impossible because of the inconsistency of these processes with the second law of thermodynamics. Exergy analysis of these sources is possible, but at the international level, its development has not been completed and confirmed by inadequate regulations. In the Russian Federation carried out a large number of studies on the use of renewable sources without a proper analysis of their transformations, which reduces their scientific and practical significance. The widespread use of heat pumps in Japan, the US, Canada and the developed European countries in recent years has reduced the consumption of primary energy supply by 2-3 times.

The purpose of research - the use of heat and energy of the radiation environment on the basis of eksergeticheskogo analysis for energy conservation in the agricultural sector and utilities.

The results of research. It developed a semi-empirical method of exergy analysis transformation of the radiation energy in the process of photosynthesis in plants and the method of exergy analysis heat protection when used with heat pumps and chillers. It is possible to develop a semi-empirical method of exergy analysis of the direct conversion of light into electricity. There is a need of testing methods developed exergy analysis of renewable sources of radiation and creating regulations for their regulation.

Determination exergy optical radiation, both with respect to the photosynthesis plants and in the case of its direct conversion into electricity may semiem-

pirical method.

Eksergetichesky analysis in agriculture. Using exergy radiation pro-cession plant photosynthesis, as the beginning of calculation, was able to develop a methodology to quantify a mutually agreed definition of traditional agro-ecological values and to express them in the same eksergeticheskih unit (free energy). Widely used in the environment, crop production and agriculture quantities: agroclimatic (bioclimatic) reclamation potential, fertility of land (soil), maximum (potential) efficiency of plants (species, varieties, hybrids) are not mutually agreed upon and have no clear quantification. All these values are quantified mutually agreed, uniquely identified, taking into account energy-gopreobrazuyuschih features (genetic potential) type, grade, Ki-Brida plants and are expressed in the same units of free energy (exergy).

Using these values allows the use of computer media-tion for the optimization of agricultural technologies.

This system allows you to perform calculations on the selection of alternative species, varieties, hybrid plants to produce the required products for compliance with the environmental conditions of land. Such a calculation on the selection of forage crops in the 3- and 5-tipolnyh rotations allowed to increase the total yield of these crops only at the expense of the crop selection by 30-35% and reduce energy consumption by 40-45% yield in ecological conditions of the Moscow region. The system can correctly on a quantitative basis to determine the level of efficiency of agricultural technologies, taking into account the environmental conditions of land. Without the use of exergy analysis of this assessment is fundamentally impossible. The above conditions of use exergetic analysis in crop production and farming technique and computer system to optimize crop production are the basis of the theory eksergeticheskoy harvest.

Eksergetichesky analysis utilities. Traditionally, the electricity supply of these consumers is carried out by the centralized power lines. Heat supply - from standalone fuel teplogenerotorov. Without modernization of the energy sphere of the Russian Federation can not be an equal partner with the developed countries of the main

types of agricultural trade, as well as many other types of goods and services.

The countries of Western Europe in the period from 1970 to 2005 reduced the energy intensity of GDP 2.5-3.0 times by replacing heating hot water boilers at CHP cogeneration and use of heat pumps. Because of the inability to correctly determine the thermodynamic and exergetic efficiency of the heat pump efficiency characterize their energopreoobrazuyuschuyu heating coefficient. A method of exergy analysis heat medium in which the heat pump can be characterized by the thermodynamic efficiency and eksergeticheskim with the same reliability as the thermal power machines.

Conclusions

The RF approximately 50% of the total fuel used in the country each year is spent only for a low temperature heat. Exergy this portion of the fuel is not used. Unfortunately, Russia does not produce and do not use the proper amount in the most high-performance low-temperature heat generators - the heat pump. This is due to high energy consumption, as the Russian agricultural and GDP, as well as the ever-increasing cost of housing services. Necessary and urgent modernization of energy and utilities APC RF replacing fuel heat generators at the CHP cogeneration and use of heat pumps that use the warmth of the environment. To accelerate the use of highly efficient medium heat and direct conversion of solar radiation energy necessary regulations for eksergeticheskomu analysis of these types of renewable energy sources.