

сельскохозяйственных предприятий можно отметить, что биогазовые установки также достаточно перспективны на территории страны. Объём образующихся в сельском хозяйстве отходов достаточен для рентабельности его использования для производства биогаза [4].

Энергетическая безопасность Республики Беларусь должна опираться на широкое использование различной номенклатуры энергетических ресурсов. Этими ресурсами должны являться как традиционные энергетические ресурсы, так и различные виды возобновляемых источников энергии. Опора на различные возобновляемые источники энергии позволяет снизить зависимость от импортных энергетических ресурсов, а также решить некоторые экологические проблемы.

Список используемых источников

1. Посысаев, Ю.Ю. Конкуренция альтернативных видов энергии на мировом рынке / Ю.Ю. Посысаев // Российский внешнеэкономический вестник, № 8, 2014. – С. 68–88.

2. Дегтярев, К.С. К вопросу об экономике возобновляемых источников энергии / К.С. Дегтярев, А.М. Залиханов, А.А. Соловьев // Энергия: экономика, техника, экология, № 10, 2016. – С. 10–20.

3. О возобновляемых источниках энергии [Электронный ресурс]: Закон Республики Беларусь от 27.12.2010 № 204-З // Законодательство Республики Беларусь. Режим доступа: <http://pravo.newsby.org/belarus/zakon0/z312.htm>. – Дата доступа: 29.11.2021.

4. Стребков, Д.С. Биогазовые установки для обработки отходов животноводства / Д.С. Стребков, А.А. Ковалев // Техника и оборудование для села, № 11, 2006. – С. 28–30.

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BASIC PRINCIPLES OF ENERGY SAVING IN THE AGRICULTURAL COMPLEX

Throughout its existence, mankind has used the energy accumulated by nature for billions of years. At the same time, the methods of its use

were constantly improved in order to obtain maximum efficiency. Energy has always played a special role in human life. All its activities are associated with energy consumption. Thus, at the very beginning of man's evolutionary development, only the energy of his body muscles was available. Later, man learned to receive and use the energy of fire. Another round of evolutionary development of human society brought the opportunity to use the energy of water and wind - there were the first water and wind mills, water wheels, sailing ships that use wind power to move [1,2]. In the XVIII century, a steam engine was invented, in which the thermal energy obtained by burning coal or wood, is converted into energy of mechanical motion. In the XIX century, an electric arc was discovered, electric lighting, an electric motor was invented, and then an electric generator - which was the beginning of the century of electricity. The twentieth century was a real revolution in human development of methods of obtaining and using energy: building thermal, hydraulic, nuclear power plants of enormous power, built high-voltage, ultra- and ultra-high voltage power lines, developed new methods of production, conversion and transmission of electricity, powerful power systems are created. At the same time, powerful oil and gas supply systems appeared [3, 4].

Thus, the world around us has a truly inexhaustible source of various types of energy. Some of them are not yet fully used today - the energy of the Sun, the energy of interaction of the Earth and the Moon, the energy of fusion, the energy of the Earth's heat. Energy now plays a crucial role in the development of human civilization. There is a close relationship between energy consumption and output. Unfortunately, most of the energy consumed by humans is converted into useless heat due to the low efficiency of the use of available energy resources [3, 4].

Energy saving is a multifaceted process and covers various areas of human activity. In essence, this way of life of the people, society, produces a certain psychological algorithm of behavior. The development of the economy of the republic as a sovereign state is impossible without the development of a national idea, the psychology of careful and economical use of available energy and raw materials, the use of experience in this field by other countries. And this is the most important area of activity today, a resource to increase the competitiveness of industrial production, a way to integrate the economy into the international market [5].

Traditionally, energy consumption is divided into three areas: electricity consumption, heat consumption, fuel combustion. Modern energy saving is based on three basic principles:

- firstly, not so much the strict saving of electricity as its rational use, including the search and development of new non-traditional sources of energy saving;
- secondly, the widespread use of both household and industrial meters for metering and regulating the consumption of electrical and thermal energy;
- third, the introduction of the latest technologies to reduce the energy intensity of production.

Based on this, in energy saving there are the following groups of measures that ensure efficient energy use and rational use of fuel and energy resources: scientific and technical; organizational and economic; regulatory and technical; information; legal.

Scientific and technical measures for energy saving are aimed at the development and use in the production of new methods and devices with high energy efficiency.

Organizational measures for energy saving are divided into organizational-mass and organizational-technical. One of the conditions for ensuring careful and rational use of fuel and energy, reducing their losses in production is the implementation of organizational and mass work at enterprises aimed at saving fuel and energy resources. Forms and methods of this work are various and at each concrete enterprise have the features. The main purpose of organizational and mass work is to bring to all members of the workforce of national importance of economical and careful use of fuel and energy, preventing their losses in all areas of production, involvement in saving each employee, organizing the work of public organizations to identify and eliminate losses, search and use of savings reserves, rewarding staff for savings and taking strict measures against wasteful fuel, heat and electricity.

Economic measures for efficient energy use include a system of flexible energy prices and universal tariffs; tax policy and measures of material stimulation of economic energy consumption.

The normative and technical measures for energy saving include actions to create appropriate standards and other normative and technical and guiding documents to ensure efficient energy use and rational use of fuel and energy resources.

Information measures on energy saving include holding information and technical seminars, exhibitions, conferences, symposia on this topic, as well as informing the public through the media (press, television, radio) about the main actions for the rational use of energy, both in

production and in everyday life. All of the above energy saving measures must be supported by an appropriate legal framework.

Bibliography

1. Skliar O. Technical means for mechanization of technological processes on livestock farms / O. Skliar, S. Grigorenko // Theory, practice and science. Abstracts of V International Scientific and Practical Conference. Tokyo, Japan. – 2021. – Pp. 255–257.

2. Skliar R. Measures to improve energy efficiency of agricultural production / R. Skliar, O. Skliar // Abstracts of XIII International Scientific and Practical Conference. «Social function of science, teaching and learning». Bordeaux, France. – 2020. – Pp. 478–480.

3. Manita I.Y. Justification of the energy saving mechanism in the agricultural sector / I.Y. Manita, A.S. Komar // Engineering of nature management. – 2021. – №1(19). – Pp. 7–12.

4. Zhuravel D. Modeling the reliability of units and units of irrigation systems / D. Zhuravel, O. Skliar // Multidisciplinary academic research. Abstracts of I International Scientific and Practical Conference. Amsterdam, Netherlands. – 2021. – Pp. 83–86.

5. Skliar O. Directions of increasing the efficiency of energy use in livestock / O. Skliar // Current issues of science and education. Abstracts of XIV International Scientific and Practical Conference. Rome, Italy. – 2021. – Pp. 171–176.

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СЕЛЬСКОГО ХОЗЯЙСТВА С РАСПРЕДЕЛЕННОЙ
ГЕНЕРАЦИЕЙ ЭНЕРГИИ**

Энергетика в целом, и электроснабжение в частности, является основной системообразующей и жизнеобеспечивающей отраслью государства. Надежность электроснабжения и затраты на электроэнергию существенно влияют на эффективность всех отраслей экономики, в том числе сельскохозяйственного производства. Основными направлениями развития энергетики Республики Беларусь