

ALTERNATIVE ENERGY SOURCES

Vinnitsia National Technical University

Анотація

Розглянуто переваги та недоліки використання альтернативної енергії на приклад біогазу, геліоенергетики та геотермальної енергетики.

Ключові слова: енергетика, альтернативна енергія, біогаз, геліоенергетика, геотермальна енергетика.

Abstract

The advantages and disadvantages of using alternative energy on the example of biogas, solar energy and geothermal energy are explained.

Key words: energy, alternative energy, biogas, solar energy, geothermal energy.

Introduction

Energy sources are divided into two types: traditional and alternative. The first includes minerals such as gas, oil, coal. The second type means renewable sources, which include the energy of solar radiation, wind, seas, rivers, biomass, Earth's heat, and secondary energy resources that exist constantly or appear periodically in the environment. Therefore, we will consider the pros and cons of using biogas, solar energy, and geothermal energy.

Research Results

Biogas

The production of biogas allows to reduce the amount of methane emissions into the atmosphere. Methane makes serious adjustments to the state of the Earth's atmosphere. A so-called "lens" is formed from all kinds of gases and especially carbon compounds, which prevent heat from escaping into outer space. Thus, heat is concentrated in the atmosphere itself, and the planet is getting hotter and hotter. In this process, methane has a 21 times stronger negative impact than carbon dioxide. Thus, the production of biogas and its subsequent use for the production of heat and electricity is the most effective means of combating global warming. Biomass that remains after waste processing can be used in agriculture as fertilizer. Moreover, such fertilizers have a much better and more effective effect on the soil, plant development, and groundwater, unlike artificial fertilizers [1].

Solar Energy

Despite the environmental purity of the received energy, the photocells themselves contain poisonous substances, for example, lead, cadmium, gallium, arsenic, etc., and their production consumes a large number of other dangerous substances. Modern photocells have a limited service life (30-50 years), and their mass use will pose a difficult issue of their processing in the near future. Recently, the production of thin-film photocells, which contain only about 1% of silicon, has been actively developing. Due to the low content of silicon, thin-film photo-elements are cheaper to manufacture, but still have lower efficiency [3].

Geothermal Energy

The quality of geothermal energy is low and it is better to use it for heating buildings and preheating the working bodies of conventional high-temperature installations. This heat is also used for fish farms and greenhouses. If the heat from the subsurface comes out at a temperature of more than 150 °C, then we can talk about the production of electricity. This source is characterized by a diverse impact on the natural environment. Thus, an additional amount of compounds of sulfur, boron, arsenic, ammonia, and mercury dissolved in groundwater enters the atmosphere; water vapor is released, increasing humidity; accompanied by an acoustic effect; lowering of the earth's surface; land salinization [2].

Conclusions

Thus, alternative energy replaces fossil fuels. With its help, you can overcome the problems of lack of resources, pollution of the planet by products of mineral processing, global warming and many others. But it is also not a perfect method. And alternative energy has both its pros and cons.

REFERENCES

1. Біогазові технології: теорія і практика : монографія / В. М. Желих, Ю. В. Фурдас ; М-во освіти і науки України, Нац. ун-т «Львів політехніка». – Львів : Вид-во Львів. політехніка, 2015. – 164 с.
2. Саранчук В. І., Льяшов М. О., Ошовський В. В., Білецький В. С. Хімія і фізика горючих копалин. – Донецьк: Східний видавничий дім, 2008. – 600 с.
3. Сонячна енергетика: теорія та практика: монографія / Й. С. Мисак, О. Т. Возняк, О. С. Дацько, С. П. Шаповал ; М-во освіти і науки України, Нац. ун-т «Львів. політехніка». – Львів: Вид-во Львів. політехніки, 2014. – 340 с.

Мишук Оксана Володимирівна – студентка групи ТЗД-216, факультет будівництва, цивільної та екологічної інженерії, Вінницький національний технічний університет, Вінниця, e-mail: misukoksana257@gmail.com

Науковий керівник: Слободянюк Алла Анатоліївна – старший викладач кафедри іноземних мов, Вінницький національний технічний університет, м.Вінниця, e-mail: a.allavin@gmail.com

Oksana Mishchuk V. – *student*, Department of Ecology, Chemistry and Environmental Protection Technologies, Vinnytsia National Technical University, Vinnytsia, e-mail : misukoksana257@gmail.com

Scientific supervisor: Slobodianiuk Alla Anatoliivna – Senior Lecturer of the Foreign Languages Department, Vinnytsia National Technical University, Vinnytsia, e-mail: a.allavin@gmail.com