Qabul qilindi: 19-oktabr 2026-yil • Ma’qullandi: 26-oktabr 2026-yil • Nashr qilindi: 02-noyabr 2026-yil

THE USE OF SOLAR ENERGY IN EVERYDAY LIFE

Tursunboeva Khusnora Ibrokhimjon kizi

Student of the Presidential School in Fergana

husnorablue@gmail.com

Abstract. This thesis highlights the importance of solar energy as a natural energy source, the possibilities of using it in everyday life, and its advantages. It also provides information about the operating principles of solar panels and solar collectors, as well as the processes of converting solar energy into electrical and thermal energy. The economic and environmental aspects of using solar energy are explained through simple examples.

Keywords: solar energy, solar panel, electrical energy, renewable energy, solar collector, ecology, energy saving.

Introduction

The Sun is one of the main sources of energy for life on Earth. It provides us with light and heat, helps plants grow, and ensures the occurrence of many natural processes. People have been using sunlight since ancient times. For example, solar energy is used to dry clothes, preserve food products by drying them, and naturally heat houses.

Today, due to the growing demand for electrical energy, the use of solar energy is becoming increasingly important. Solar energy is considered a renewable and relatively clean source of energy from an environmental perspective. Its efficient use helps save electricity and protect the environment.

Main Part

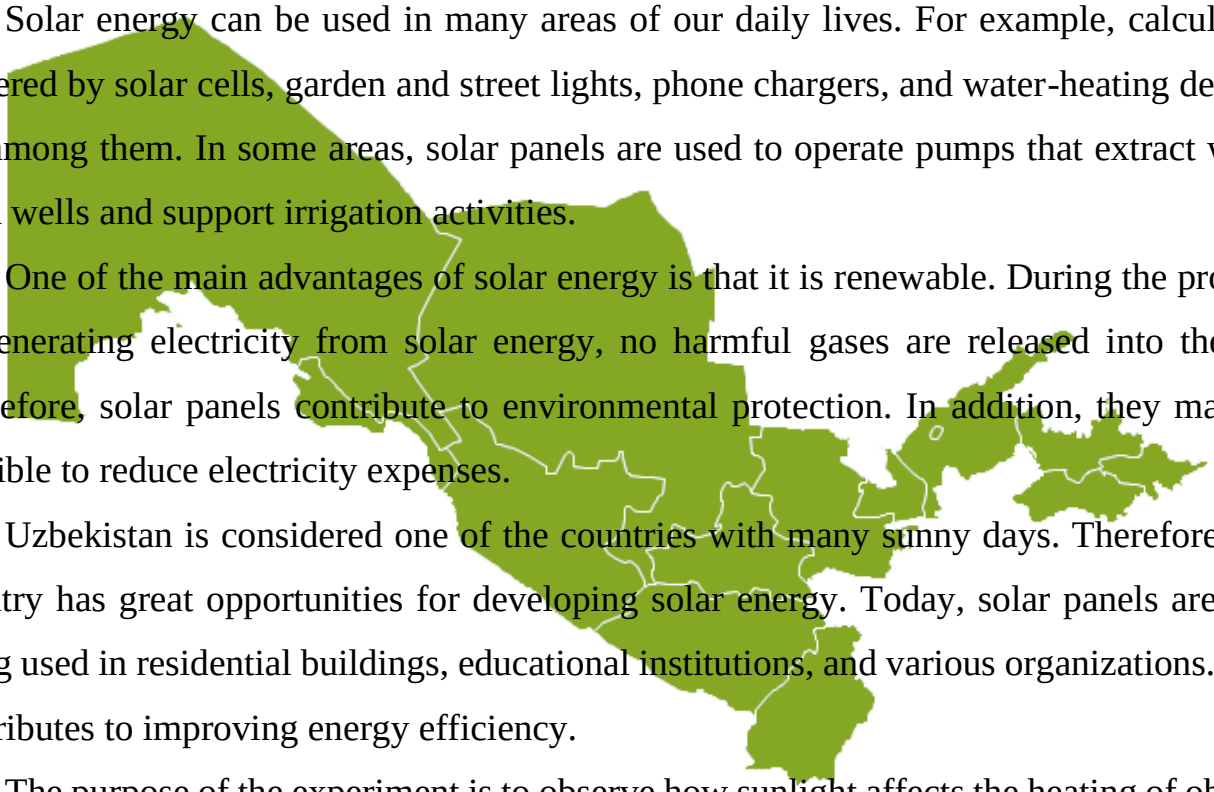
Solar energy is the energy that reaches the Earth from the Sun in the form of light and heat. People use this energy for various purposes in their everyday lives. With the help of modern technologies, sunlight can be converted into electrical energy or heat.

One of the most common ways of using solar energy is through solar panels. Solar

panels consist of special photovoltaic cells that convert sunlight into electrical energy. This process is called the photovoltaic effect. Solar panels can be used to supply electricity to houses, schools, enterprises, and other buildings.

Another way of using solar energy is through solar collectors. Solar collectors use sunlight to heat water. Such devices are used in residential buildings to provide hot water and in some heating systems. This helps reduce the use of traditional energy sources.

Solar energy can be used in many areas of our daily lives. For example, calculators powered by solar cells, garden and street lights, phone chargers, and water-heating devices are among them. In some areas, solar panels are used to operate pumps that extract water from wells and support irrigation activities.



One of the main advantages of solar energy is that it is renewable. During the process of generating electricity from solar energy, no harmful gases are released into the air. Therefore, solar panels contribute to environmental protection. In addition, they make it possible to reduce electricity expenses.

Uzbekistan is considered one of the countries with many sunny days. Therefore, our country has great opportunities for developing solar energy. Today, solar panels are also being used in residential buildings, educational institutions, and various organizations. This contributes to improving energy efficiency.

The purpose of the experiment is to observe how sunlight affects the heating of objects of different colours. Two identical plastic containers, water, black and white paper, and a thermometer are needed for the experiment. The experiment is carried out as follows: equal amounts of water are poured into two identical containers. The first container is wrapped in black paper, while the second one is wrapped in white paper. Both containers are placed in a safe location exposed to sunlight. First, the temperature of the water is measured. After a certain period of time, the temperature of the water in both containers is measured again.

During the observation, the temperature of the water in the container covered with black paper may increase more than that in the container covered with white paper. This is because a black surface absorbs more sunlight, while a white surface reflects a large part of

it.

Table 1

The heating effect of sunlight on objects of different colours

No.	Colour of the container	Initial temperature	Final temperature	Temperature change
1	Black	22°C	32°C	+10°C
2	White	22°C	27°C	+5°C

Note: The table presents illustrative results. Actual temperature readings may vary depending on the weather, sunlight intensity, duration of the experiment, and the position of the containers. The figures in the table should be replaced with the actual results obtained during the experiment.

The experimental results show that black and white surfaces have different sunlight absorption properties. Since the black container absorbs more solar energy, the temperature of the water inside it may increase more. The white container reflects some of the sunlight, so the water inside it heats up relatively more slowly.

This experiment helps us understand in a simple way how solar energy is converted into thermal energy. It also demonstrates how solar energy can be used in everyday life. For example, solar collectors are used to heat water, while solar dryers are used to dry fruits and vegetables.

Conclusion

In conclusion, solar energy is a renewable energy source that plays an important role in our everyday lives. It can be used to generate electricity, heat water, illuminate houses, and operate various household appliances. The use of solar energy helps conserve natural resources, reduce electricity costs, and protect the environment. Uzbekistan’s sunny climate creates favourable conditions for the efficient use of this energy source. Therefore, everyone should pay attention to saving energy and understand the importance of using renewable energy sources. Studying solar energy helps develop students’ careful attitude towards nature and increases their interest in science and modern technologies.

References

1. Physics textbook for general secondary schools. – Sections on thermal phenomena

and light.

2. Hewitt, P. G. *Conceptual Physics*. – Pearson.

3. Halliday, D., Resnick, R., Walker, J. *Fundamentals of Physics*. – Wiley.

4. Giancoli, D. C. *Physics: Principles with Applications*. – Pearson.

5. Serway, R. A., Jewett, J. W. *Physics for Scientists and Engineers*. – Cengage Learning.

6. Duffie, J. A., Beckman, W. A. *Solar Engineering of Thermal Processes*. – Wiley.

7. Green, M. A. *Solar Cells: Operating Principles, Technology, and System Applications*. – Prentice-Hall.

8. OpenStax. *College Physics 2e*. – Rice University.

9. International Energy Agency (IEA). *Solar Energy*. – Official website.

10. National Renewable Energy Laboratory (NREL). *Solar Energy Basics*. – Official website.

