

Technology and Physics of Taking Suitable Electro Energy with the Help of Solar Power

Khurulboyev Shukrullo Abdullajonovich

Senior Teacher of “Department of Uzbek Language and Literature », Andijan Institute of Mechanical Engineering

Abstract: This article gives an example of the achievements of the Chinese state industry in the production of electricity from solar energy. It also discusses solar energy, the technology, physics and methods of generating electricity using solar energy.

Keywords: solar energy, solar collectors, photovoltaic technology, computers, active and passive solar systems.

The sun's rays reaching the earth's surface are a huge source of heat. The main task of *Helio technics* is to find ways to use this source effectively, to create various devices, energy sources.

Helio technics (*helio and technology*) is a branch of technology that deals with the conversion of sunlight into another type of energy that is suitable for practical use, the science of how to use solar energy for technical purposes.

In areas where the sun shines for 1,800 to 3,000 hours a year, the use of solar panels and solar power plants saves a lot of fuel and energy. However, the inability to use such devices and stations at the same time throughout the year makes them difficult to use. When we talk about the technology and physics of generating electricity using solar energy, of course, I don't think it's right to ignore the Chinese state. Because China is one of the largest producers of electricity using solar energy.

The Chinese are very good at "rubbing the nose" of other countries in high-tech fields such as industry, construction and genetics. China has become the world's largest producer of solar energy using electricity is proving to be capable of many things next time. This achievement is especially significant for China, which for many years has been engulfed in the smoke of many factories and mills that run on fossil fuels. Environmentally friendly energy can save China from smoke and allow its people to fill their chests and breathe again.

The Chinese National Energy Administration has announced that the amount of solar energy produced by Chinese power plants has doubled. Now this capacity is 77.42 gigawatts, which is an absolute record for all states. Despite the staggering numbers, solar energy accounts for 1 percent of China's total energy production. However, the situation may change dramatically in the near future, as the Chinese government is “*firmly committed*” to the transition to clean energy sources.

If the data provided is to be believed, the capacity of environmentally friendly renewable energy sources in China will increase to 110 gigawatts in the next 3 years, And by 2030, these resources will provide 20 percent of all the needs of the state. Abandonment of fossil fuels will result in huge financial costs, but the Chinese government is eager to complete the work it has begun. \$ 364 billion has been invested in the project to convert production to new forms of energy. And that amount may not be final yet.

Main part

Before we get into the technology and physics of generating electricity using solar energy, let's take a look at solar energy. Solar energy is an infinite, inexhaustible energy. It is energy that does not harm the environment, biological life, living organisms in any way. Extensive use of solar energy does not harm the planet's energy reserves accumulated over millions of years.

Every year, the energy coming from the sun to the earth is 10 times more than the heat from various sources in the depths of the earth. If there is access to solar energy, which falls on 1/10 of the Central Asian desert region, it would be 30 times the capacity of power plants in the Commonwealth.

Areas of efficient use of solar energy include Ukraine, Moldova, the Caucasus, Central Asia, Kazakhstan, some regions of the south and far east of Russia. Sunny days here reach 2200-3000 hours a year. During this time, solar energy is 1200-1700 kWh per 1m². In order to use sunlight, 200,000 m² of solar collectors are produced annually, and with their help, water and houses are heated.

We know that the Sun is the largest thermonuclear reactor, with a capacity of 4 million tons per second. absorbs a ton of hydrogen and converts it into helium, releasing an infinite amount of energy.

That is why many experts have been looking for ways to use this energy. This work began with the great Greek scientist Archimedes. He directs sunlight through a window on the sailing ships of the invading Romans and burns the ships. As a result, Archimedes saved his hometown of Serokuz from invaders.

In 1985, the first solar power plant was commissioned in the Crimean village of Shelkino. One heliostat in it consists of 45 windows with a total area of 25 m². They are always looking at the Sun. Around the built-in device, 1,600 heliostats are placed, which direct 75,000 solar rays to a single point in the steam generator or a 60-ton water boiler.

It heats up to 25,000 C⁰ here. The steam generated from it is transferred to the pipes using a pressure of 40 atmospheres, which activates and generates electric generators. The capacity of the Crimean QES is 5,000 kW.

Ways to use sunlight have also been developed by scientists from the Academy of Sciences of Uzbekistan. Their devices were built around the Silver-mining village of Parkent and elsewhere. Solar energy collected by built-in devices is used in various fields (water heating, heating houses, greenhouses, etc.).

In addition, in most parts of the world, the amount of solar energy reaching the roofs and walls of buildings is much higher than the annual energy consumption of the inhabitants of these houses. Using sunlight and heat is a clean, simple and natural way to get all the energy we need. With the help of solar collectors, residential and commercial buildings can be heated or provided with hot water. Concentrated sunlight with parabolic mirrors (reflectors) is used to generate heat (temperature up to several thousand degrees). It can be used for heating or to generate electricity. There is also another way to get energy from the sun - photovoltaic technology.

Photovoltaic cells are devices that convert solar radiation directly into electricity.

Solar radiation can be converted into energy used by solar systems called active and passive. Active solar systems include solar collectors and photovoltaic cells. Passive systems are obtained by designing buildings and selecting building materials in a way that allows maximum use of solar energy. Solar energy is converted into usable energy and indirectly converted into other forms of energy, such as biomass, wind or water. Solar energy "Controls" the weather on Earth.

Much of the sun's radiation is absorbed into the oceans and seas, where water heats up, evaporates, falls to the ground in the form of rain, and "feeds" hydroelectric power stations. The wind required by wind turbines is generated as a result of uneven heating of the air.

Another category of renewable energy sources derived from solar energy is biomass. Green plants absorb sunlight and as a result of photosynthesis they produce organic matter, from which heat and electricity can then be obtained.

Conclusion

Thus, wind, water and biomass energy are derived from solar energy. It should be noted that there is no tax on solar panels installed to generate electricity from solar energy. With the effective use of the above technologies, every home can have its own electricity.

References:

1. Yunusov B.Yu. Yunusova T.K. Solar convection drying of agricultural products 2. Modern problems of power engineering Int. Conference I, Tashkent 2011
2. Yunusov B.Yu., Tulaev B. Universal solar installation for heating hot water supply for dwellings. Modern problems of energy Int. Conference I, Tashkent 2011.
3. Ibragimova Dildora Shamsiddinovna. English for Specific Purposes/ Journal of Contemporary Issues in Business and Government//. 2021. Vol 27 №5 p 754-758
4. Ibragimova D.Sh. APPLYING AUDIO LINGUAL METHOD IN ENGLISH LESSONS/Zayniyeva N.B//International Journal of Psychosocial Rehabilitation. 2020. Volume 24 Issue 4. p 2999-3002 <https://10.37200/IJPR/V24I4/PR201412>
5. Ibragimova Dildora Shamsiddinovna, & Raupov Kahramon Maxmudovich. (2021). Conventions as Metacommentary game engine. Middle European Scientific Bulletin,12.<https://doi.org/10.47494/mesb.2021.12.530>
6. <https://kun.uz/>
7. <https://uz.thinkfirsttahoe.org/>
8. <https://vaqt.ucoz.com/>