

THE USAGE OF SOLAR PANELS ADVANTAGES AND DISADVANTAGES

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Abstract

The paper considers the feasibility of using solar panels, advantages and disadvantages, and analyzes their effectiveness.

Keywords: solar battery, SES, solar energy, electricity

Introduction

Solar power plants is an innovative equipment. Solar energy is one of the most rapidly developing alternative (renewable) industries. Solar energy is being developed at an increasing rate and has already grown into a powerful industry in the world's largest economies. The growth rate of the solar energy has accelerated this year in Ukraine. Nowadays large-scale terrestrial power plants are the major part of new solar power capacity in our country. The energy of the sun can be effectively used in an average Ukrainian private house. Solar power plants for houses are presented in the form of systems that operate on the basis of solar cells that generate electricity from the sun.

Research results

The range of using of the solar panels is increasing every day. These devices have successfully proven themselves in industry, agriculture, space and even at home. Solar panels are used in such areas as portable electronics, electric vehicles, aviation, energy supply . The use of roofing SES has its advantages and disadvantages.

The disadvantages of using solar panels

1.We can signify the high cost of the solar panel and the insufficient efficiency. An average of 1 square. meter solar panel area produces no more than 120 Wh of useful power. This energy is not enough even for a computer. The average efficiency of solar panels used for the power supply of buildings is 14%, which is less than the efficiency of the traditional energy sources.

2.We can use solar panels for emergency power supply. You need an inverter and a battery for emergency power charging, the same inverter and battery plus solar panel and controller for power - from solar panels. Why should we overpay? Well, unless you will have to turn off the electricity for a few days.

The advantages of using solar panels

1.If we put the panels on the roof we can sell the power to the state.

2 .We can use the solar power for billboards, Wi-Fi towers, street lighting and for small consumers which are not connected to the grid, a solar mini power plant is the perfect solution .

3. They can be used for private houses that are further than 500 m away from the grid: if you have a consumption of 200-400 kW / h per month, you will definitely benefit from installing solar panels.

4. If your top priority is safety and autonomy then there is nothing to think about just take solar panels.
5. Even a small solar power plant will provide you with a good level of a comfort in autumn and in spring.
6. Solar batteries can be used for camping, it is better to pay once for a set of solar panels than to pay for fuel for generators every time.

Solar panels efficiency is an indicator that shows how much solar energy that has hit the surface of a solar panel has been converted to electric current. Increasing efficiency is one of the priority areas of activity of research centers, since increasing the efficiency of the solar battery greatly reduces its payback time, allows to receive more electricity per unit area.

There are several external factors that can seriously affect the efficiency of solar panels:

1. The dust - the more polluted the surface of the solar battery, the less sunlight enters the surface of the semiconductor.
2. Shading on the surface of a solar cell causes a decrease in current generation.
3. Panel temperature when the surface of the solar cell is heated its performance is greatly reduced.
4. Maximum generation efficiency is achieved due to that the sun's rays falling strictly perpendicular to the surface of the solar battery.

Solar systems work for the whole year, their action is very effective. Therefore, we see the total potential of solar energy in Ukraine. Technical radiation of solar radiation for energy, so technically allowed to potential solar energy sources with the ancient population of Ukraine today 26-37 TWh • year which mainly made the potential (on a modern basis 0.05 euros per 1 kWh • year): 1, 3 - 1.8 billion euros per year.

The main engineering element of the solar system are solar collectors, which convert the energy of sunlight into the heat or electricity. Only three-solar thermal collectors can be found for heat supply. The term of storage facilities is 7 years, taking into account modern energy costs. And the period of usage is 30-50 years.

Indicators implemented in other experimental projects showed that heat production in Ukraine was 500 - 600 kW • year / m². Executing the generally accepted potential forces of solar collectors in the West for the expansion of countries reaching 1 m² per person, there is also the efficiency of solar institutions for the population of Ukraine, which exist in the solar environment, and this applies to the danger of 28 kW • year / m² energy. Realization of this potential was provided with savings of 3.4 million. tons of conventional fuel per year.

Revealing the previous facts, we can talk about the feasibility of using the solar potential, which is inclined in Ukraine. The average amount of solar radiation per 1 m² in the region of Ukraine is in the range: from 1070 kW • year / m² in the northern branch of Ukraine to 1400 kW • year / m².

Conclusions:

Therefore, the expediency of using roof solar panels is considered. Placing solar systems on the roof does not require any permission. A great advantage of solar systems is the ability to use them as a backup of the power source. This requires only the additional installation of batteries, the volume of which will depend on the duration of battery life in the darkness.

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