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ALTERNATIVE ENERGY SOURCE, SOLAR BATTERY.

Annotation: *Solar energy can be used both for heat production and for electricity production. The process of producing electricity in a non-traditional way takes place, because obtaining electrical energy without wasting energy, obtaining electrical energy from mechanical energy of water, obtaining energy from organic, obtaining ecological energy, obtaining energy, obtaining energy.*

Key words: *obtaining electricity using sunlight, photovoltaic element, concentration of charges, potential difference, serial and parallel connection of photovoltaic elements, accumulators.*

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АЛЬТЕРНАТИВНЫЙ ИСТОЧНИК ЭНЕРГИИ, СОЛНЕЧНАЯ БАТАРЕЯ.

Аннотация: *Солнечную энергию можно использовать как для производства тепла, так и для производства электроэнергии. Происходит процесс производства электроэнергии нетрадиционным способом, т.к. получение электрической энергии без потерь энергии, получение электрической энергии из механической энергии воды, получение*

энергии из органики, получение экологической энергии, получение энергии, получение энергии.

Ключевые слова: *получение электроэнергии с использованием солнечного света, фотоэлектрический элемент, концентрация зарядов, разность потенциалов, последовательное и параллельное соединение фотоэлектрических элементов, аккумуляторы.*

Solar energy can be used for both heat production and electricity production. Non-conventional generation of electricity is developing, because the prospect of obtaining electricity without wasting fuel is a good method.

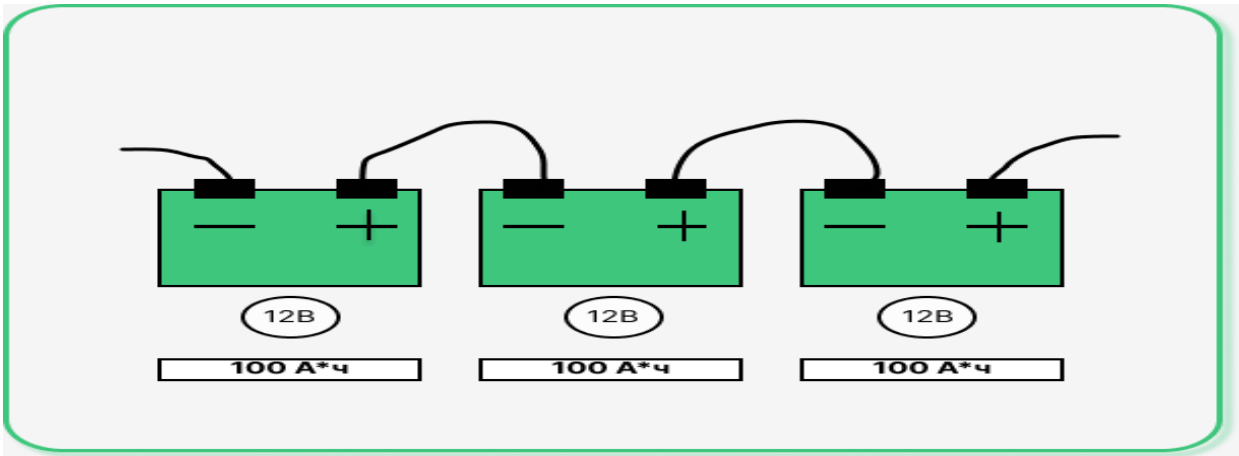
It is possible to get electricity using the wind, get electricity using the mechanical energy of water, get electricity from organic substances as a result of the chemical reaction of substances from animal waste and sunlight. One of the convenient ways to obtain electricity using sunlight is among them. The range of sunlight is electromagnetic energy with frequency, and the wavelength of visible light is $\lambda=0.38\div0.78$ μm [1,2].

Elements that convert sunlight into electricity are called photovoltaic elments. Selenium, silicon and gallium arsenide are the materials of photovoltaic elements. An output voltage of up to 0.45÷0.6 V can be obtained from a photovoltaic element made of selenium and silicon, and up to 0.87 V from a photovoltaic element made of gallium arsenide [3].

Photovoltaic element is made as follows: in one of two thin silicon plates, the main charge carriers are electrons (n), and the non-main charge carriers are holes (p). In the second plate, the non-main charge carriers are electrons (n). If we stick them together, as a result of diffusion in the middle part, a positive layer is formed in the boundary part of the crystal with the main charge carriers n, and a negative layer is formed in the boundary part of the crystal with the main charge carriers p, that is, in the boundary part of the crystals p-n layer is formed [4,5].

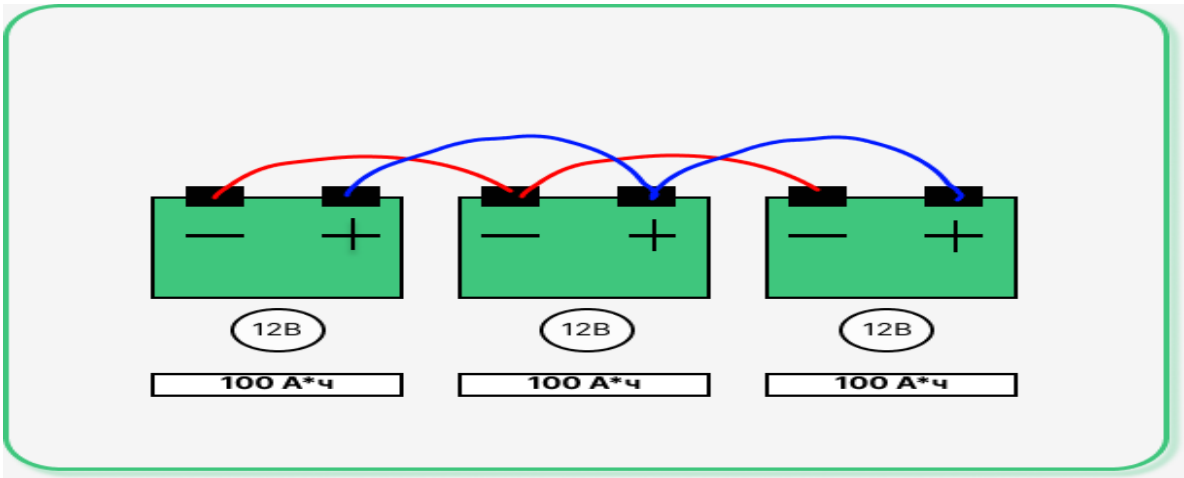
When a light beam falls on the plate at an angle of 900, holes in the n region move to p, and electrons in the p region move to n. As a result, the concentration of charges of the same sign increases in the crystals, and a potential difference is created, which leads to an increase in the Electroconductive Force. Forming a chain through the outer part of the crystals and connecting a resistance, the photocurrent PhE flows through the chain. The current at the output of the photovoltaic element is directly proportional to the density of the incident light beam and the increase in the crystal surface. But photo PhE does not depend on the size of the surface. Most often, the voltage at the output of the photovoltaic element is equal to 0.45 V [6].

To increase the output voltage from the solar cell, it is necessary to connect several photovoltaic elements in series (Fig. 1).



To increase the current, photovoltaic elements are connected in parallel. When several photovoltaic elements are connected in series, the negative pole of the first photovoltaic element is connected to the positive pole of the second photovoltaic element, and so on. When a photovoltaic element is connected in parallel, the poles of the elements are connected accordingly [7,8].

If it is necessary to increase the current and voltage in the solar cell at the same time, the required current and voltage for the load are generated by connecting photovoltaic elements in series and parallel (Fig. 2).



Photovoltaic cells do not produce electricity on cloudy days and when it is dark. Therefore, it is advisable to use it in parallel with the electric source accumulators. When the photovoltaic cell is not producing electricity, the battery works and supplies the load with electricity [9].

In addition to supplying electricity to the load, the battery can also be charged when the photovoltaic cell is generating electricity. For this, a photovoltaic battery, accumulator and load are connected in parallel. The solar battery is convenient to use, safe, environmentally friendly, but the production of photovoltaic elements is technologically more expensive, but it will definitely pay off over time. Because there are many sunny days in Uzbekistan. Therefore, it is desirable to build and operate an industrial enterprise that will produce millions of photovoltaic elements [10].

Use of solar batteries in the economy and technology. Todays concepts of solar cells, batteries and photovoltaic devices have historically appeared 50 years ago, and during the last 10-15 years they have entered the national economy and ordinary people's lives as a source of energy. The essence of the operation of these devices is based on the processes of absorbtion of solar radiation and separation of charge pairs created as a result of potential barriers created in the semiconductor and transfer to the external electric circuit.

As a result of fundamental researches in the initial period, it was found that ensuring complete absorption of the spectrum of solar radiation depends on

the properties of the material. For the practical implementation of solar cells in Earth conditions, it is necessary to increase the profitability of their production and reduce the cost while achieving the maximum efficiency of solar utilization.. This process depends on the factors in house q [11].

1. Reducing material expenses
2. Using relatively cheaper materials for making solar cells.
3. Mechanization and automation of the solar element preparation process and some technological operations.
4. To simplify the technological processes of preparation and strive to develop an optimal technological route.

In order to actively develop solar cell production technology, use homogeneous technological processes and relatively reduce the cost of cells, it is recommended to obtain thinner and cheaper layers, as well as to use as much polymer materials and raw materials as possible in cell production technology [12].

Recently, the relative reduction in the cost of solar cells is directly linked to the improvement of the silicon extraction process. For example, a method of recovery from silicon dioxide has been developed to obtain silicon with pure semiconductor properties. A method of continuous growth of silicon ribbons has beecreated [13].

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