Solar energy

Wind energy, or **solar energy**, are natural sources that can completely cover the needs of mankind. Prospects for development in this direction are enormous. The **photovoltaic** device involves the conversion of solar energy into useful electricity. A **solar panel** is used for this purpose. The action of the converter is based on photoelectron emission and internal photoeffect.

For example, charging an electric car can take place from **solar energy**. Charging of any household appliances, gadgets or equipment in the workplace is also possible from the sun. This is very promising and needs additional attention. In Ukraine today, there is a very small percentage of companies that use **solar energy**. But this list is gradually growing.

This industry is developing dynamically. The constant rise in prices for coal, oil and gas stimulates such processes. We will add obvious cost-effective indicators and environmental factors. From the point of view of ecology, the introduction of **solar energy systems** can be considered as a necessary and only direction for the existence of mankind in the future.

From the economic point of view, the state determines ways to stimulate the development of the industry. But not only are there benefits or incentives. Penalties for violations of environmental legislation are implemented, prohibitions and restrictions are imposed, even until the enterprise is shut down in case of violations, so that the **production of solar energy** gains new momentum. Imagine what would happen if you suspended the operation of an existing enterprise for at least a few days. It is clear that this will lead to millions in losses. And it is difficult to oppose the state system. This practice is implemented in most countries.

The appearance of the first solar panels

The first silicon photovoltaic cell was called a **solar cell**. It is clear that since 1953 it has changed a lot, but the principle of operation remains. The **solar battery** has a long service life. It is an environmentally friendly source of energy. The **efficiency of solar energy** has been proven in practice. Mostly **solar equipment** is being built in Ukraine in the southern regions. The leader in construction is the Chinese company CNBM. Its **solar electrical systems** occupy a third of the market. Due to the fact that Chinese labor is cheaper, it is difficult for domestic producers to compete. But **solar equipment** is also being developed in Ukraine. In terms of indicators, it is better, but in competition there is little demand. Corporations and enterprises with foreign capital are created, investors are attracted. Work is being done in this direction, because solar energy is profitable.

The industry is actively developing and stimulated by the state. In some cases, you can even count on budget money for **solar energy production**. But in practice, this happens between private companies and corporations under state supervision. Extraction of **solar and wind energy** does not take, of course, the first place, but it is necessary to go to it. If you find an investor who will spend 1 billion or more euros, build **solar energy systems** in Ukraine from 1 GW, you can repay foreign debts and become an exporting country, but, of course, this is just fiction that has nothing to do with real life.

Modern **solar panels** in Ukraine are used in agricultural, industrial and other industries. It was predicted that **solar panels** would be cheaper by 10% annually, but this is not observed. This is due to the fact that the market invites more products than manufacturers can provide. Today, **green energy** in Ukraine is the most expensive in Europe. But it is not possible to reduce its cost at the same time. We need to watch market trends. For example, Germany has been actively using **solar**

energy for over 20 years. We cannot compare our experience in the field with the experience of the Germans. Now they are actively talking about the use of the exclusion zone. They want to place **solar panels** there, but there are many questions about it.

Question: Who invented solar panels?

Answer: it was the French scientist Alexandre-Edmond Becquerel.

Solar energy system: photovoltaic modules

Photovoltaic modules occupy a major place in the **solar energy system**. They have a unique design and structure. The **photovoltaic** device consists of various elements. Its purpose is to convert **solar energy** into electricity. It is important to know that **photovoltaic** cells are stored in a battery. You can repair any component at any time. Video surveillance can be organized at the facility. There is **a mobile solar trailer** for this. It is used not only on similar objects. In the United States, for example, the **solar trailer** is common in military, police, and other areas in cities and outdoors.

There are the following **photovoltaic modules**:

- single crystal;
- polycrystalline;
- thin film.

The latter are the cheapest, and the first two species are outwardly similar, but have technical differences.

Contains **photovoltaic** device photocells. They are usually combined in parallel and sequentially. They consist of two layers, one of which is the cathode and the other the anode.

Not all types of **photovoltaic** panels are equally effective, because they differ not only in price but also in quality. When choosing you need to use the help of experienced professionals, even if you want to install ceiling lights in the country. It is not necessary to speak about big objects. The benefit of the market is competition and you can choose the best contractor to perform the work.

The **solar energy system** is a complex structure. If you choose the wrong **photovoltaic cell**, the whole network will work incorrectly or not at all. Since the cost of a **solar energy system** is considerable, these are great risks. It is necessary to correctly determine the company-contractor, calculate the cost, according to the project, determine the time so that **photovoltaic energy** will soon appear on the site. High-quality photovoltaic module has a fairly long service life.

Question: Why is it impossible to install solar systems for local budgets?

Answer: the size of local budgets is limited, it is impossible to spend only on it.

Solar technologies: efficiency of solar energy

Solar technology is developing most rapidly in China. No other industry can boast of such a pace of development. Over the last ten years, its capacity has increased 100 times. Today, **solar technology** continues to evolve and grow. China already produces about 150 GW of **solar energy** and this is very impressive. For comparison, Ukraine is about 2 GW. **Photovoltaic energy** is no longer something exotic. It has become a subject of struggle between manufacturers, contractors and even states for a "place under the sun." Today, **green energy** has moved to the political plane.

Experts plan that by the end of 2100 the level of **solar and wind energy** production will exceed the

capabilities of the oil and coal industry by 3-4 times. Such data are based on the analysis of growth rates. But they are not accurate, because **solar energy systems** are modernized every year.

Ukraine has large areas for the installation of **solar energy systems**.

Activities in the field of **green energy** are regulated by the relevant laws of Ukraine, namely:

- “On energy saving”;
- “On the electricity market”;
- “On electricity”;
- “On alternative fuels”;
- “On alternative energy sources”;
- “On the principles of functioning of the electricity market of Ukraine” i.e.

Solar energy systems in Ukraine should grow every year, but the behavior of market participants must be properly regulated. To do this, the relevant government agencies should be headed exclusively by specialists with experience in the field. Otherwise, you can get the opposite result in the future.

Solar engineering: photovoltaic energy

Engineering is developing new **solar electrical systems**. Developers are optimizing, increasing capacity, working to reduce prices. The cost of products on the market depends not only on engineers. Market value is a separate topic of conversation. For engineers, such an indicator as the **efficiency of solar energy** is important. Much will depend on it, including the cost of production. And the market price will be formed from the cost.

It is a sin not to use **solar energy** in Ukraine. But all programs, laws, unfortunately, do not work effectively enough. To a greater extent it depends on the human factor. The power of **solar energy** has long been used around the world. But not all countries can afford to use it. It depends not only on solvency and **solar engineering**. It is banal that the sun does not shine so brightly everywhere, and a sunny day is as long as in Ukraine.

Question: how to introduce ecological energy everywhere?

Answer: Mankind is working on this issue.

Solar energy efficiency: solar engineering

Modern **solar engineering** is not yet perfect, but it has made great strides forward. **Solar technologies** change every year. This helps reduce costs. The product becomes more competitive from an economic point of view. There is a separate environmental component. First of all, **solar technology** should be used for environmental reasons. But most are only interested in profit. This is how the market and economic processes work. That is why it is necessary to create conditions for the construction of **solar energy systems**. Entrepreneurs and producers must earn. **Solar energy** allows you to do this for the benefit of nature.

It is time for all of us to think about our future. People are wasting natural resources unreasonably. This has been going on for a long time. Resources are not limitless. **Solar and wind power stations** will allow you to switch to thoughtful use. We must unite around this issue. We need to spread **solar technology**. We need to do this as soon as possible. Because the energy of solar is also finite. But underground resources will run out faster. **Solar electrical systems** can save humanity, flora and fauna. Spread environmental problems among the population. Love nature. Study **solar engineering**. Introduce environmental education. Sooner or later, everyone will understand that **green energy** is the future.

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