

References

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ARE ALTERNATIVE ENERGY SOURCES REALLY EFFECTIVE?

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Energy exists and has not stopped its development for a long period of time. People have been looking for energy sources for their own purposes for a long time. The first sources of energy were, of course, thermal power plants [1]. People have been controlling fire for a very long time and using it for their needs. Thermal power plants were very inefficient and produced little energy, while consuming a lot of resources. Low efficiency occurs due to the large losses that take place at each of the stages.

The principle of operation of thermal power plants has a simple mechanism. At the initial stage, a certain type of fuel burns in the boiler and generates a large amount of heat. The heat energy increases the water's temperature to the boiling point. The water boils and the resulting steam drives a turbine with blades. In turn, the turbine is mechanically connected to an electric generator and generates electricity by its rotation [1].

This principle of operation is quite universal and is used in some other traditional power plants. These include nuclear and geothermal power plants.

One of the disadvantages of thermal and similar power plants can be attributed to the exhaustion of fuel for the combustion process [2].

If, for example, for nuclear power plants, uranium reserves are predicted to last for more than 1000 years, then for thermal power plants, the volume of coal and gas reserves is less. Such resources are restored for a very long time and are considered non-renewable.

If we talk about regenerative fuel stations, then hydroelectric power plants can be cited from the traditional ones. Their design also has a turbine connected to a generator. It is only activated under water pressure on dams of reservoirs. In such power plants, electricity can be produced for a very long time, since resources will not be exhausted.

For today, alternative energy sources are actively developing. These include wind and solar power plants. Their advantage is that they do not need any fuel. And since there is no combustion process in them, they do not produce any emissions [3], unlike, for example, thermal power plants.

In the world today, there is an increasing tendency to build alternative energy sources, such as solar or wind to replace traditional ones. The leaders in this regard are the countries of Europe. Every year the percentage of energy produced by alternative energy sources is getting higher [4].

One of the main reasons for the growing trend for such power plants is their environmental friendliness, since they do not emit anything into the atmosphere. However, it should be borne in mind that the blades of most wind farms are made from materials that are very difficult to dispose of. And therefore, for the most part, the blades that have spent their life are simply stored.

For comparison, nuclear power plants also do not emit harmful emissions during operation. Although they have a similar problem with the disposal of spent uranium rods. Wind and solar power plants also have a problem with limited efficiency. Because of it, in order to get enough energy, you need to occupy a large area with such installations. While nuclear power plants can produce the largest amount of energy of all possible power plants. Thus, it will not be necessary to occupy such a large area to generate a similar amount of electricity.

And perhaps the most significant drawback of alternative energy sources is their uneconomical nature. This is due to the fact that the installations themselves and power plants in general have a high cost relative to how much energy they produce [2]. In other words, the electricity received from such sources turns out to be very expensive. The situation could be corrected by a significant reduction in the cost of production of installations, which is quite problematic. Another way out was a multiple increase in the energy produced, which even with high efficiency will not be achieved, since wind or solar energy itself is small.

In contrast, we can give an example of nuclear power plants as the most economical [2]. The cost of construction and subsequent purchase of uranium rods is commensurate with alternative sources. However, the power generated is an order of magnitude higher. This means that the cost of energy at such a power plant can be several times cheaper.

One of the reasons for the smooth displacement of nuclear power plants in Europe is a concern for safety. But progress does not stand still and now the level of security at such stations is much higher than it was before. The risk of various kinds of accidents is almost zero.

As a conclusion, we can say that nuclear power plants have a great potential. Perhaps it is necessary to develop this industry, and not to displace it, today, with less efficient wind and solar energy.

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MODERN EQUIPMENT FOR CONSTRUCTION OF AIRLINES

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Power line – is a one of the components of the electrical network, a system of power equipment designed to transmit electricity by electric current. Also, an electric line as part of such a system that extends beyond the substation power plant. Overhead transmission line (OHL) - a device designed for transmission of electricity distribution through wires, located in the open air and attached by means of traverses (brackets), insulators and fittings to or supports other structures (bridges, overpasses) .

The construction of the transmission line, its design and construction are regulated by the Rules of arrangement of electrical installations and Building norms and rules

Types of supports. Power line towers are designed for the construction of power lines with a voltage of 35 kV and above at a rated outdoor temperature of -65 ° C and is one of the main structural elements of power lines (power lines), responsible for mounting and hanging electrical wires at a certain level. Depending on the method of suspension wires, the supports are divided into two main groups: