ALTERNATIVE SOURCES OF ELECTRIC ENERGY: WIND GENERATOR

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Nowadays more and more attention is paid to conservation of natural resources and environmental protection. Humanity needs alternative sources of energy that are both environmentally friendly and cheap.

The objective of the study is to compare the existing modified models of the wind generator.

The following tasks were set:

1. To investigate the basic methods of generating electrical energy.

2. To study the operating principles of the wind generator.

3. To consider the widely known models of wind generators.

4. To compare the widely known models with wind generators.

Thus, if we can create affordable, cheap, environmentally friendly energy storage, we will obtain cost-effective wind generators.

Nowadays there are several alternative methods of generating electricity, but all of them are far from being perfect. The wind generator has many advantages, although fuel generators are still most common. They have increased wear and high fuel consumption, they also produce harmful emissions and their production is expensive. It's known that non-renewable reserves of energy sources (oil, gas) are exhausted. Although coal reserves will be sufficient for some more time, the power plants working on coal are environmentally unfriendly. They emit CO2, CO and carbon dust into the atmosphere. It's obvious that new sources of energy are required. Wind power plant converts the kinetic energy of wind into mechanical and electrical energy. This plant is convenient for practical use.

Having made several attempts to create the wind generator and studied theoretical background of the new sources of energy, we have come to the conclusion that the obtained energy could be used in practice, but it requires a relatively large size of the valve. Taking into account all these facts and also the complexity of mechanical structures, some processes had to be simulated. Similar calculations can be made for the entire structure. If $\beta = 1$ kg / m, $r = 2$m, $\upsilon = 5$ m / s, $N = 750$ watts. And if the speed of wind increases up to 10 m / s, the output power will be 6280 W, which is acceptable for practical application.

If a big wind generator with r = 5 m is installed in windy weather, the plant capacity increases to 50,000 watts, while in calm weather it reaches 2.5 kW.

REFERENCES

1. Wind generator with his own hands [electronic resource]: http://e-veterok.ru/samodelniy-vetrogenerator.100watt.php
2. Wind generators [electronic resource]: http://www.vetrogenerator.ru/index.html?#

PROBLEMS OF EXPLORATION OF STEAM GENERATORS IN NUCLEAR POWER PLANT

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One of the important elements of NPP (Nuclear Power Plant) with reactors with pressurized water of VVER and PWR type is a steam generator (SG), which generates steam for the turbine generator and production of electricity.