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Wind Power

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The limited global reserves of fuel and energy, deterioration of the ecological situation raise the question of renewable energy resources application. The active use of environmentally friendly energy sources is welcomed by both the world community and the governments of the developed countries.

Wind is one of the most common and available energy sources. Devices which convert wind energy into useful mechanical, electrical or thermal forms of energy are called wind power plants. Wind turbines are classified according to two main features: the geometry of the wind wheel and its position relative to the direction of the wind. If the axis of rotation of the wind wheel is parallel to the air flow, the installation is called horizontal, if it is perpendicular then it is vertical. The exploitation of wind turbines does not require fuel and water, they can be fully automated. That is why wind power is rapidly developing and becoming the main branch of power engineering [1].

Wind power develops the theoretical foundations, methods and means of using wind energy to generate mechanical, electrical and thermal energy. Wind power energy consists of 2 main parts: wind engineering, which develops theoretical foundations and practical techniques for designing technical equipment, and wind use, including theoretical and practical problems of optimal consumption of wind energy, rational operation. The results of wind research in different

places are registered in the energy cadastre. And wind generators are built based on this energy cadastre.

The advantages of wind energy are accessibility, renewability and availability. Moreover the energy source does not need to be mined and transported to the place of consumption. This feature of the wind is very important for remote areas that are located at a long distance from sources of centralized energy supply [2].

The main disadvantage of wind energy is changeability of wind in different places. The wind doesn't have only long-term and seasonal variability, but also changes its activity during the day. Wind generator produces electrical power at special speed (2-15 m/s). But if the wind speed is above the established value the wind generator will stop to generate electrical power [3].

Electricity is an important part of human life, and the need in it is constantly increasing. Our planet is facing an energy crisis because of the limited global reserves of fuel and energy. Therefore, the use of alternative energy sources is gaining popularity now.

References:

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