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SOME ASPECTS OF THE USE OF WIND TURBINES IN UKRAINE

A wind turbine or alternatively referred to as a wind energy converter is a device that converts the wind's kinetic energy into electrical energy. Its main difference from traditional (thermal, nuclear) is the complete absence of both raw materials and waste. The only important requirement for a wind farm is a high average annual wind level.

Let's consider the wind generators installed in Primorsk - Botievo wind farm: the installed capacity of the power plant is 200 MW. The construction was carried

out in two stages: 30 facilities “Vestas V-112” were launched in 2012, another 35 facilities - in 2014. The power station generated 665.6 million kWh in 2018.

There are some problems that arise during the development of wind farms. One of the main arguments against using wind generators is noise. Noise from modern wind generators at a distance of 20 m from the installation site is 34 – 45 dB. In its outline, due to its location in the steppe region, the problem of infrasound and vibrations has disappeared, since there are no large buildings nearby that could be damaged, but even this problem is solved by choosing a good aerodynamic profile, a well-balanced wind turbine, timely inspection. The vibration frequency - 6-7 Hz - coincides with the natural rhythm of the human brain, so some psychotropic effects are possible. Also one of the arguments against the use of wind generators is the harm done to animals and birds. But statistics show that, based on 10,000 individuals, less than 1 unit dies due to wind generators, 800 units due to power lines. Due to the huge size of the structure, there is a problem with the costly transportation of parts and their installation. But in turn, a 1 MW wind generator reduces annual emissions of 1800 tons of carbon dioxide, 9 tons of sulfur oxide, 4 tons of nitric oxide. Perhaps the transition to wind energy will affect the rate of decrease in the ozone layer and affect the rate of global warming. Due to the climate of Ukraine, wind farms do not need frost-resistant materials and oils.

Analyzing the foregoing, it is safe to say that from an environmental point of view, wind generators are not harmful. Practical confirmation of this is that modern wind energy today generates more than 200 billion kWh per year, which is equivalent to 1.3 % of global electricity production. Ukraine is ideal for wind farms due to the steppes and climate. Thus development of wind farms in Ukraine will help reduce environmental damage and even improve it.