

## REFERENCES

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## WIND GENERATORS

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A wind turbine is a popular name for a device that converts kinetic energy from the wind into electrical power. Technically there is no turbine used in the design but the term appears to have migrated from parallel hydroelectric technology. The correct description for this type of machine would be aerofoil-powered generator.

Strictly speaking wind generator can be made from a few magnets, coils of wire and a piece of plywood for the blades. Fully working wind generator will not do without the following components:

- The rotor; blades; wind turbine; tail, orienting the rotor against the wind
- Generator
- The mast with stretch marks
- Charge controller
- Batteries
- Inverter

$$P = 0.5 \cdot \xi \cdot S \cdot v^3 \cdot \rho \cdot \eta_{ред} \cdot \eta_{ген}$$

For a rough calculation of wind turbine power different formulas can be used but it is better to use the following: here  $\xi$  - is the coefficient of wind use (WEUC),  $S$  - working area of the wind turbine,  $v$  - the speed of the incoming flow,  $\rho$  - flux density,  $\eta_{gm}$  - the efficiency of the gear unit / multiplier,  $\eta_{ген}$  - the efficiency of the generator.

In calculations it is necessary to take into account different WEUC values for different types of generators. Vertical wind turbine WEUC can reach about 0.4-0.5, and it does not exceed 0.3 for wind turbines with a horizontal rotation axis.

The obtained electrical energy is not ready to use yet: recorded directly from the generator electric energy will vary depending on the wind speed. To make a usable energy it is necessary to accumulate energy so that it can be converted subsequently for certain tasks. To solve this problem the so-called "buffer", a battery that stores energy and a charge controller which is necessary for the proper battery charge is applied.

## REFERENCES

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