

WIND POWER INSTALLATION

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At the moment all over the world due to economic and environmental problems has been increased interest in alternative energy sources, in particular, to wind power.

Modern wind energy in many developed countries of the world is part of the energy systems.

Wind energy in Kazakhstan can provide electric energy, capacity 920 billion kW-hr per year. In 2013-2020 years, Kazakhstan has planned to install 13 wind turbines with a total capacity of 793 MW. International exhibition EXPO-2017 is planned to provide electricity through wind power capacity Ereymentau complex.

The main part of the wind power installation is a wind turbine. There are two types of wind turbine: a horizontal rotation axis; with a vertical axis of rotation.

Vane wind turbines include a first group and are currently mainly used in their wind turbines. Power vane wind turbine depends on the length of the impeller. Therefore, for the installation of such wind turbines require high tower. Utilization of wind energy such wind turbines is 0.35-0.45.

Rotary, revolving wind turbines belong to the second group. These wind turbines are low-power, low-speed and large size. Power depends on the area of wind turbine blades. Utilization of wind energy such wind turbines 0.20-0.25.

A common shortcoming of existing wind turbines are low efficiency, large size, the location of a wind turbine required higher off the ground right on the wind currents, exposure to atmospheric agents (rain, snow, frost, heat), the variable speed of the wind wheel.

In this regard, in Taraz State University M.Kh. Dulati the department "Mechanics and Engineering" developed wind power installation for peasant and individual farms with max load capacity of up to 5 kW. It consists of two parts: the convergent-airway system; wind turbine installed on the ground indoors.

Wind turbine installation has a multi-blade wind wheel, most of the blades which simultaneously interact with the flow of the wind, while the existing blade wind wheels blades operate sequentially. Parallel running rotor blade of a wind turbine is reduced dimensions and increases the use of wind power coefficient.

Convergent-airway system picks up the flow of wind, adjusts the speed of the wind (increases, decreases) and submits to the wind turbine.

Wind turbines can be used for the production of electrical energy and wind turbine to drive a variety of working machines, such as pumps, hay and grain crusher, mixer and other machines.

Wind turbine does not require a high-rise tower for mounting and has a simple structure. The proposed wind power installation allows remote management self-powered.

Currently, work is underway to create a prototype of a wind power installation.

On the results of research obtained by two innovative patents, published 6 scientific articles, laboratory made the installation of the convergent wind power installation and experimental studies.