THE PRINCIPLE OF OPERATION OF THE WIND POWER PLANT AND ITS ADVANTAGES

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Abstract. Wind is the movement of air masses as a result of changes in pressure due to the intensity of sunlight. The conversion of mechanical energy generated by air flow into electrical energy is carried out with the help of wind power plants. Wind energy is an environmentally friendly source of energy. Germany ranks first in the use of wind energy.

Introduction. A wind power plant is a device that converts the kinetic energy of the wind flow into electrical energy. It consists of a wind engine, an electric current generator, an automatic device controlling the operation of the generator and the engine, as well as the structures where they are installed. Wind power plants are often used as a source of electricity in regions with high average annual wind speed greater than 5 m/s and far from centralized power supply networks, for example, in Central Asia - in steppes, deserts and semi-deserts. At the wind power station, it is possible to generate electricity from 8 kW to 1.2 mW. Humanity has been using wind energy long before water power and steam turbines. In England, Germany, France, Denmark, Holland, the USA and other countries, wind energy has been used on a very large scale in agriculture and industry. The ongoing reforms in the use of wind energy are to create large capacity wind generators and to connect their energy to existing power grids and use them as the main grid. The Republic of Uzbekistan was the first to install the largest wind farm in the recreational zone of the Charvoq reservoir. The installation of the wind energy equipment with the power of 750 kW was carried out with the help of the South Korean company <<Doojin Co.LTD>>. Anemometers measuring wind speed and other control-measuring devices are installed on a 40 meter-high tower at the wind energy-equipment site. The wind power plant produces 12,3 million kWh of electricity in a year, as a result of which 700,000 cubic meters of natural gas is saved. According to the report of the Uzgidromet Institute, the average

wind speed in the area where the wind power plant is installed is 4,3 m/s. and in the winter season it is 6,7-7,1 m/s.Wind speeds ensure stable operation of the wind energy equipment.

Interest in wind energy began in the 1970s after the 1973 oil crisis. The crisis has made many countries dependent on oil imports, and this has led to the search for options to expand this dependence. In the mid-1970s, Denmark began testing modern wind turbines. Later, the Chernobyl tragedy also sparked interest in renewable energy sources. California has implemented one of the first wind energy incentive programs, introducing tax credits for wind energy producers. By the beginning of 2019 the total installed capacity of all wind turbines exceeded 600 gigawatts. Since 2019 the average increase in the total capacity of all wind turbines in the world is 38-40 gigawatts per year, and this is due to the rapid development of wind energy in the USA, India, China, and the European Union. In 2008 more than 400,000 people were employed in the wind energy industry worldwide. In 2008 the global market for wind energy equipment grew to 36,5 billion euros, or approximately 46,8 billion US dollars. Wind tunnels met about 30 percent of Denmark's energy needs in 2012. The Danish government plans to increase this number to 50% by 2020, and totally plans to! Transition to renewable energy sources by 2050. By 2020, the expected level of employment in the wind energy sector in the European Union labor market is estimated at 520,000 jobs. By 2030, this number will increase to 795,000 (62% of workers will be involved in offshore projects. Today, US wind farms generate enough electricity to power more than 11 million homes, as well as offers at least 75,000 jobs in the manufacturing, construction and maintenance sectors. The above cases clearly show that wind is not just clean air; it is an energy revolution, providing the energy we need to develop without polluting our environment. This is the future technology.

$1.8 billion wind power plant to be built in Bukhara Main news of JSC $1.8 billion wins power plant to be built in Bukhara The Chinese company Liaoning Leader has begun construction of a wind power plant in the Gijduvon district of Bukhara region, the Ministry of Foreign Affairs of Uzbekistan reported. service. On September 22, a solemn ceremony was held to install the tower for measuring wind power. The total cost of the project is 1.8 billion dollars, and the production capacity is 1.5 thousand MW. The government allocated land for 6,000. The project is planned to be implemented in 3 stages. At the first stage, it is planned to attract foreign direct investment worth 240 million dollars for the construction of a 200 MW power plant. In April 2015, the German companies GEO-NET and Inec-GOPA developed a map of

wind power in six regions of Uzbekistan. According to the results of these studies, the forecast potential in the field of wind energy is 17 thousand square meters. m. in the area is 1.07 trillion kWh of electricity per year. Currently, only one experimental wind power plant with a capacity of 750 kW has been built in Tashkent region. In May 2017, President Shavkat Mirziyoyev adopted the program for the development of renewable energy sources in Uzbekistan in 2017-2025. The implementation of programs on the construction of solar power plants, the construction and modernization of hydroelectric power plants will allow to increase the share of renewable sources in the energy produced in 2025 from 12.7 percent in 2016 to 19.7 percent. It is a renewable energy source. Wind is a rich and inexhaustible resource, which means you can always rely on the original source of energy, which means there is no expiration date. Also, it can be used in many parts of the world. To produce and store the same amount of electricity, wind farms require less land than photovoltaics. It is also reversible, which means that the existing area of the park can easily be restored to update the existing area.

Summary. Over thousands of years, wind energy technology developed slowly and did not attract enough attention. However, due to the World Petroleum Convention of 1973, under the dual pressure of conventional energy emergency and global environmental degradation, wind power has re-emerged as part of new energy. As a new source of non-polluting and renewable energy, wind power is especially important for development in coastal islands, remote mountainous areas with inconvenient transportation, low-income grazing pastures, and rural areas far from the grid and nearby grids. has great potential. Borderland is of great importance as a reliable solution for production and living energy. Even in developed countries, wind power is valued as a clean and fresh source of new energy.

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