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**DEVELOPMENT OF USE OF ALTERNATIVE ENERGY
SOURCES.**

Annotation: Various sectors of the national economy (from 1 kW to 1000 kW) are provided with cheap, continuous electricity. It is possible to organize electricity from alternative energy sources, and in many areas it will be possible to use existing renewable energy resources. Installation of wind turbines allows not only to obtain environmentally friendly electricity, efficient use of renewable energy resources, but also to provide electricity to places where electricity does not reach, to save oil and gas products, and to create additional jobs.

Key words: alternative energy source, wind engine, electricity, renewable energy resources, environmentally friendly electricity, continuous supply of electricity.

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**РАЗВИТИЕ ИСПОЛЬЗОВАНИЯ АЛЬТЕРНАТИВНЫХ
ИСТОЧНИКОВ ЭНЕРГИИ.**

Аннотация: Различные отрасли народного хозяйства (от 1 кВт до 1000 кВт) обеспечиваются дешевой и бесперебойной электроэнергией. Возможна организация электроснабжения из альтернативных источников энергии, а во многих сферах можно будет использовать существующие возобновляемые источники энергии. Установка ветряных турбин позволяет не только получать экологически чистую электроэнергию, эффективно использовать возобновляемые энергоресурсы, но и обеспечивать электроэнергией места, куда

электричество не доходит, экономить нефтегазовую продукцию, создавать дополнительные рабочие места.

Ключевые слова: альтернативный источник энергии, ветровой двигатель, электроэнергия, возобновляемые источники энергии, экологически чистая электроэнергия, бесперебойная подача электроэнергии.

Wind is one of the first sources of energy used by humans. The energy reserves of the wind are 100 times more than the hydro-energy of the rivers, but today 10,000,000 megabytes of energy are developed worldwide. This indicator is 0.001% of the world's energy balance. Around the world, various programs have been developed for wind energy and its use. Scientists and engineers have now developed powerful and reliable wind turbine designs that are technically advanced for agricultural and industrial applications. Wind energy devices can be divided into 2 types [1]. 1- wind mechanical devices, 2 - wind energy devices. In 1930, a project of a wind power plant was developed, and later in the city of Rome, the world's first 100 kW wind wheel with a diameter of 30 meters was installed. The electricity produced by the SPP was directly connected to the Sevostopil power station, but it was destroyed during the Second World War [2].

Wind speed is determined before installing wind equipment. The wind speed should be above 5 km/h and it can be winged or gusty. According to the installation of the wings of wind equipment, it is divided into transverse and vertical types. The main tools of wind equipment include: Wings, their length depends on the influence of the wind. The height of the column depends on the speed of the wind movement in the vertical direction. Various devices and devices that convert mechanical energy into electrical energy . In modern wind turbines equipped with agrodynamic screws, 150 MW of energy can be obtained when the wind speed is 6-8 km / h and the area of wind influence is 210 m/square [3,4].

Metrologically suitable areas for the construction of wind power stations in Uzbekistan include Navoi, Bukhara, Kashkadarya, It is possible to get districts of Tashkent region and regions of Qaraqalpoghistan [5]. In particular, a wind farm is operating in order to provide electric energy to the curtain factory in the Kazakh Darya region of Karaganda region. Chorvo village of Tashkent region in the field of work, the hybrid solar -wind power station will implement the radio transmission devices of the livestock complex, feed preparation, storage, preliminary processing of milk, cleaning of barns from manure and cattle care, and the electrification and mechanization of farms. Today, it is inconvenient to carry wind power lines over the air, As a result of ensuring the economic efficiency of the use of electric energy, the use of it in many areas of production, especially livestock and poultry farming, is increasing significantly [6,7].

In many developed countries, due to the energy crisis, programs aimed at connecting non-conventional energy resources, especially wind energy, have been adopted and are being implemented. Wind is considered a random uncontrollable natural process caused by the influence of the sun and the earth's rotation. As a source of energy, the characteristic of the wind is primarily its non-constantness, mainly due to the great variability of the speed. In this, it is mainly determined by the large variability of speed [8,9]. This causes the kinetic energy of the wind flow to change in relatively small intervals of time and within large limits.

In different areas, the direction and strength of the wind varies depending on the height above the earth's surface. For example, in the Northern Hemisphere, the average speed is 9-25 m/s in places close to the earth's surface. Wind speed exceeding 25-30 m/s can seriously damage the national economy. Therefore, it is considered efficient to convert wind energy into mechanical or electrical energy when the wind speed is 3-25 m/s [10].

Thus, wind energy changes proportionally to the cube of its speed. A windmill can only convert a certain amount of energy into useful work, which is evaluated by the wind energy utilization factor. Modern wind turbines convert no more than 45-48 % of the kinetic energy of the wind into mechanical energy during normal operation [11].

At the same time that non-renewable energy resources are running out, the demand for renewable energy resources is increasing dramatically. Experts estimate that at the end of the first quarter of the new century, electricity from renewable energy resources will make up about 30% of the total electricity production. As we know, several types of energy, such as the potential energy of rivers and streams, wind energy, solar energy, are considered renewable energy resources [12]. The question arises as to which type of renewable energy resources listed above is more efficient and convenient for us to use. Today, energy extraction from wind turbines is developing, of course, the advantages of such equipment cannot be denied, but the main parts of such installations are imported from abroad. But all parts of wind turbines can be built from local raw materials. In different areas, the direction and strength of the wind varies depending on the height above the earth's surface. For example, in the Northern Hemisphere, the average speed near the surface of the earth is 9-25 m/s [13]. Wind speed exceeding 25-30 m/s can seriously damage the property. Therefore, it is considered efficient to convert wind energy into mechanical or electrical energy when the wind speed is 3-25 m/s.

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Depending on the wind speed, it is possible to obtain energy from several watts to several kilowatts, and this energy can be used for various purposes of life and housing (Fig. 1) [15]. When designing wind engines, it is important to pay attention to the following:

Wind direction in the regions

- Compactness of the device
- Wind speed
- Using the most common types of generators



Figure 1. Extraction of energy from wind turbines

The classification of the final results is given below:

Environmentally friendly energy can be obtained by building, installing and generating electricity from wind turbines. Such engines can serve as the main source of energy in the entire industry. In this way, the following problems can be solved:

- Increase the standard of living of the population
- Obtaining ecologically clean energy
- Saving oil and gas products
- Reducing the price of electricity
- Ensuring continuity of electricity supply
- Creation of new jobs

- A reserve of non-renewable energy resources is a significant saving
- Small business development

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