

The use of alternative energy in karakul farming

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Abstract. *The use of alternative energy in karakul breeding in pasture conditions will help to increase the productivity of Karakul sheep at low cost. Agriculture, including livestock farming, are the main suppliers of food for humanity. Most agricultural machinery runs on fossil fuels, which contributes to the production of greenhouse gases. The article presents full-scale tests of the constructed structural models of first and second generation energy converters. Taking into account the actual operation of the installation in the field, the existing shortcomings were corrected. The device is protected by copyright through.*

Key words: karakul breeding, inverter, electrical energy, resource saving, conversion, alternative source, remote livestock pastures.

Аннотация. *Применение в каракулеводстве альтернативной энергии в пастбищных условиях поможет при небольших затратах повысить продуктивность каракульских овец. Сельское хозяйство, в том числе животноводство, являются основными поставщиками продовольствия для человечества. Большая часть сельскохозяйственной техники работает на ископаемом топливе, что способствует выработке парниковых газов. Предлагаемый альтернативный источник энергии испытан в полевых условиях. Устройство защищено авторским правом.*

Ключевые слова. Каракулеводство, инвертор, электрическая энергия, ресурс, конверсия, альтернативный источник, отдаленные пастбища для скота.

Introduction. The use of alternative energy in karakul breeding in pasture conditions will help to increase the productivity of Karakul sheep at low cost.

Agriculture, including livestock farming, are the main suppliers of food for humanity. Most agricultural machinery runs on fossil fuels, which contributes to the production of greenhouse gases. Gas emissions and, in turn, accelerate climate change. Such environmental damage can be mitigated by promoting renewable resources [11].

To solve this problem, renewable resources are proposed, which have enormous potential for agriculture. Farmers should be encouraged with subsidies to use renewable energy technologies [11].

According to world estimates, a significant proportion of energy is spent as a means of human life, that is, to meet domestic needs, in buildings and structures. For example, the consumption of 32% of the world's energy is spent to ensure the life of the rear; in Europe, this figure reaches up to 40%; in the UK 39%; in China 28% and in the near future an increase to 35% is predicted [1].

Issues related to the extraction, transportation and consumption of energy cause many problems and world conflicts, problems related to environmental pollution and economic recession in Western Europe, the United States and Russia.

At the present stage, China, India are experiencing rapid urbanization. If we no longer worry about the problems caused by the large consumption of fossil fuels, these problems will become more serious. This dilemma illustrates the need to take into account environmental protection and the availability of local resources in the energy planning of newly built megacities in order to reduce their energy consumption [2].

Demand for energy will grow by 2.1% per year until 2040, according to international agencies that estimate population and industry growth. Demand for electricity is largely offset

by natural resources such as geothermal, solar or wind energy, but the growing demand for small-sized electronics, implants and wearable devices that rely on batteries requires an alternative solution [3, 4, 5, 6, 7, 8].

To solve the problem, the best minds of mankind are developing various options and mechanisms for generating alternative energy. Alternative energy supply systems are becoming more and more comprehensive and on the lips of the entire public. On the one hand, this problem includes many aspects, including engineering, technology, economics, the environment, and so on. The worst energy and energy consumption becomes a weapon in the hands of politicians, a consequence of world conflicts [2, 9, 10].

A device that creates kinetic-pulse reactive force converts this force into electrical energy and can be used to provide electricity to remote livestock pastures.

Analysis of Experiments and Research Results. The electrical energy inverter refers to mechanical engineering, in particular to energy, and allows you to solve the problem of energy supply at vital civil and defense facilities in unforeseen circumstances and emergency situations. An alternative energy source with a weight drive has a supporting structure in the form of a lifting and transport mechanism, containing a rectangular frame with wheels and the ability to move along guides fixed on vertical supports in the longitudinal direction, a trolley on wheels with the ability to move along the frame guides in an alternating direction, while sets in motion the main shaft, from which the torque is transmitted to the electric current generator, as shown in figure 1.



Figure 1. A prototype of the “Samnur-1” inverter power plant.

As a result of further research, a prototype of the Samnur-2 inverter power plant was designed and built. The Samnur-2 station is an alternative source of electrical energy production and allows solving the problem of power supply at vital civil and defense facilities in unforeseen circumstances and emergency situations. The utility model is a mechanism that creates a kinetic - impulse reactive force and converts this force into electrical energy according to the kinematic scheme, as shown in figure 2.

The utility model consists of a generator, an electric motor, a stabilizing transformer and an inverter, and also a board-shaped mechanical part that generates a kinetic impulse reactive force. The kinetic impulse reactive force generated by the utility model can be formulated using the following equation:

$$C_u = (m * a)(r/d) \quad (1)$$

where C_u -kinetics & impulse reactive force, m -mass, a -acceleration, d -shaft diameter. Using this formula, you can calculate the impulsive reactive force of the installation in (N * m) and convert them to kWh to determine the power plant we need.

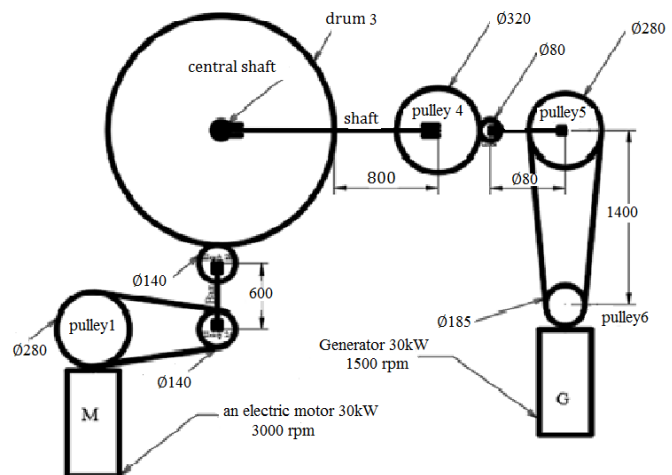


Figure 2. Kinematic diagram of the pulse-jet power plant "Samnur-2".

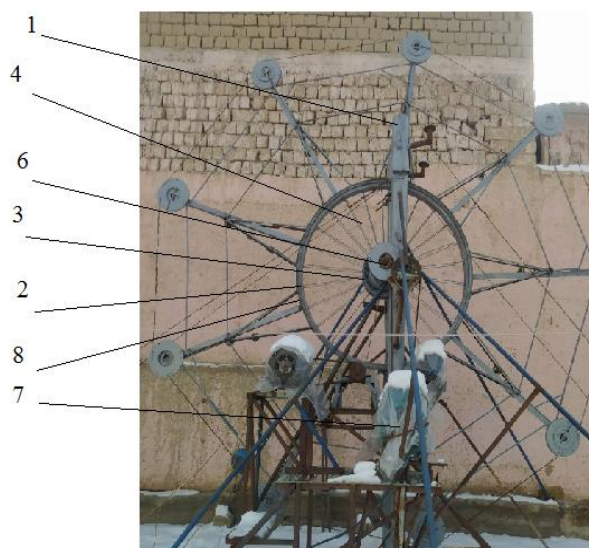


Figure 3. Station design in kind.

Conclusion. 1. This type of power generation is an alternative to all other currently existing types of power generation.

2. The use of alternative energy in karakul breeding in pasture conditions will help to increase the productivity of Karakul sheep at low cost. The device is protected by copyright through.

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