Project name: IRN AR14871978 " Highly efficient wind generator using a multi-rotor system"

Relevance: In Kazakhstan, the interest in wind generation is high, but is mainly focused on large-scale wind farms. However, the use of private autonomous wind power plants, usually of low power, is becoming increasingly relevant. Therefore, a promising development of an autonomous wind-generating substation is proposed, which, thanks to technical equipment, will make it possible to use wind energy to generate electricity with minimal losses and to provide life support for buildings and structures.

The application of the concept of a multi-rotor wind generator will solve the urgent problem of reducing energy costs, which will ultimately be economically beneficial.

Objective: to develop a high-efficiency wind turbine using a multi-rotor system in a built-up environment where the wind flow direction will be modulated, i.e. airflow concentrator for the energy efficiency of a multi-rotor wind generator with horizontal axes.

Expected and achieved results:

The implementation of this project will be the developed concept of a multi-rotor wind generator, which will solve the following tasks:

– a new direction of methods of using the air flow to increase the contribution to renewable energy sources (RES) of Kazakhstan;

– development of technical documentation for the multi-rotor wind turbine concept for successful commercialization of the project results.

Using the results of a scientific project is an opportunity to create efficient autonomous energy complexes and ensure partial energy independence of consumers.

The Ministry of Energy of the Republic of Kazakhstan, akimats of cities and regions, and industrial enterprises will be interested in the development and use of the wind power plant.

The forms of implementation of the project result will be:

– at least 3 (three) articles and (or) reviews in peer-reviewed scientific publications indexed in the Science Citation Index Expanded of the Web of Science database and (or) having a CiteScore percentile in the Scopus database of at least 50 (fifty);

– at least 1 (one) article or review in a peer-reviewed foreign or domestic publication recommended by COXON;

– development of scientific and technical, design documentation;

– dissemination of the results of the work among potential users, the community of scientists and the general public.

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