

**Sheina S.G., Fedorovskaya A.A.**

**Methodological foundations for determining priority areas for the installation of renewable energy sources (the case of the Rostov Region)**

**Abstract:** The strategy for low-carbon development in the Russian Federation until 2050 involves the use of non-traditional and renewable energy sources, such as solar, wind power, and biofuels, for remote and hard-to-reach areas that are far from traditional energy sources. This strategy aims to optimize the management process and decision-making in long-term and short-term planning by forecasting the spatial development of a subject of the Russian Federation using an information system based on modern computer technologies, specifically geoinformation systems. The basis of this strategy is a methodological framework for determining the priority regions for the development of these renewable energy sources and their competitive advantages, as well as the environmental conditions. This framework also includes the process and importance of conducting a multi-criteria assessment of the territories to ensure sustainable development and the use of the results when choosing between different types of alternative energy sources for specific built-up areas. A multi-criteria assessment is used in this case to determine the level of sustainable development of a territory's municipalities. Climate-forming factors in the assessment of a territory, as well as their relationship to climatic conditions are presented. This system of assessing a territory has been tested using the example of the Rostov Region in three areas - solar energy, wind energy, and hydropower - and the potential for using biofuel raw materials in that region is also under consideration. Based on maps created using geoinformatics systems, the Rostov Region's territory is clearly depicted, and its suitability for introducing and developing various types of alternative energy resources is assessed.