Renewable energy sources in Turkmenistan

Renewable energy sources such as solar, wind and hydropower are becoming increasingly important in the modern world. These clean and environmentally friendly electricity generation technologies play a key role in combating climate change and ensuring sustainable development.

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Overview of Turkmenistan's energy landscape

In recent years, Turkmenistan has shown a growing interest in the development of renewable energy sources, realizing their importance for solving the country's energy and environmental problems. Pilot projects in the field of solar and wind energy are being implemented in the country, which serve as the basis for further expansion of the use of these technologies. A regulatory framework is being developed aimed at supporting and stimulating the development of renewable energy in Turkmenistan.

Potential for solar power development

Turkmenistan is a country with great potential for solar energy, is actively developing this sector of renewable energy sources. Numerous solar power plants located in various regions of the country generate clean electricity, reducing dependence on fossil fuels. The annual energy potential of solar energy is estimated at 110 billion tons of conventional fuel. The distribution of the energy potential of solar energy across the territory of Turkmenistan

In 2022, “Masdar”, one of the world's leading renewable energy companies and the State Energy Corporation “Turkmenenergo” The Ministry of Energy of Turkmenistan signed an agreement on the development of a 100 megawatt solar photovoltaic plant project

Opportunities for wind power generation

Recent innovations in wind turbine design and efficiency have made wind power an increasingly viable and cost-effective renewable energy source.

Approximately up to 40% of the country's territory is favorable for the use of wind energy. The wind regime is most favorable in the western and northwestern regions of the country, where wind speeds of over 4 m/s prevail. In the northern coastal part of the Caspian zone, the specific power of the air flow is relatively high and is about 110-135 W/m2. In general, the wind energy potential can be estimated at 5.5 billion.. tons of conventional fuel per year.

Hydropower resources and projects

Hydropower resources in the country are represented by large transboundary rivers Amu Darya, Murghab, Tejen, Atrek and 20 small rivers flowing down from the northern slopes of Kopetdag. The largest river is the Amu Darya, which provides about 95% of the country's water resources. It flows through the flat part of the territory of Turkmenistan for 1000 km and the construction of a hydroelectric power station on it is impractical. The creation of hydroelectric power stations in the beds of other rivers is economically unjustified due to their low water content. The development of small hydropower on small fast-flowing mountain rivers for energy supply to individual consumers is promising.

geothermal energy

There are many hot springs and thermal waters that can be used to generate electricity and heat buildings. The Government of Turkmenistan encourages the use of geothermal energy as one of the most promising renewable sources.

Biofuel production and utilization

Bioenergy in Turkmenistan is experiencing rapid growth, especially in the especially in the sector of processing agricultural and organic waste. waste. Active research and pilot projects are underway to produce produce biofuels, biogas and biofertilizers from local raw materials. materials.

Large agro-industrial complexes are implementing systems for the the anaerobic processing of manure and plant residues, which make it make it possible to obtain combustible biogas and environmentally environmentally friendly organic fertilizers for agriculture. The use of use of microalgae for biofuel production is also promising.

Government policy and support for the development of renewable energy

1

Investment promotion

Turkmenistan offers attractive tax incentives and financial incentives to attract investors to the investors to the renewable energy sector.

2

Government programs

The Government of Turkmenistan is implementing comprehensive programs for the development of various areas of renewable energy, including solar, wind and geothermal.

3

Scientific and technical developments

Turkmenistan actively supports scientific research aimed at improving technologies for the use of for the use of renewable energy sources.

Prospects and plans for the development of renewable energy in Turkmenistan

Ambitions

Turkmenistan has set a bold goal goal to increase the share of renewable energy sources to 30% 30% in the country's energy balance by 2030. This indicates indicates the Government's firm firm commitment to the development of "green" energy. energy.

International cooperation

The country actively cooperates with foreign partners, attracting investments, technologies and expertise to accelerate the development of "green" energy.