

In 2021, the President of Turkmenistan adopted the Law of Turkmenistan "On Renewable Energy Sources", for which regulatory acts are being developed to promote the practical use of renewable energy in various sectors of the country's economy.

Turkmenistan has tremendous potential for harnessing solar energy. With more than 300 sunny days annually and with average annual intensity of solar radiation ranging between 700-800 watts per square meter (W/m²), the total technical potential of solar energy amounts to 655 GW (Seitgeldiev 2018; UNDP 2014).

Solar PV: Solar resource potential has been divided into seven classes, each representing a range of annual PV output per unit of capacity (kWh/kWp/yr). The bar chart shows the proportion of a country's land area in each of these classes and the global distribution of land area across the classes (for comparison).

Renewable energy is not seen as a viable alternative, and is not part of any priority investment plan. Turkmenenergo, the vertically-integrated power utility, has no renewable energy power generation in operation. With the world targeting carbon neutrality by 2050, relying on a single source of energy has exposed Turkmenistan to the risk of

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Renewables such as solar panels, wind turbines and hydroelectric dams generate electricity without burning fuels that emit greenhouse gases and other pollutants. As the costs of solar panels and wind turbines have fallen dramatically in recent years, renewables now represent the cheapest source of new electricity generation in many parts of the ...

In the near future, a solar and wind power plant with a capacity of 10 megawatts will be commissioned, symbolizing the beginning of alternative energy implementation in the country. Moreover, a combined power plant is being constructed on the Caspian Sea coast, which will increase exports to Europe.

Based on the methodology developed by the specialists of the Research and Production Center, pilot projects have also been implemented for a combined gas turbine and solar power station with an installed capacity of 50 MW, as well as a solar-hydrogen system to increase the energy efficiency of decentralized consumers.

Solar energy is the fastest growing form of renewable energy. The fact is that the climatic and geographical conditions of Turkmenistan allow us to widely use renewable energy sources in our country. For example, to receive solar energy and actively apply it in industry using photovoltaic converters and in thermal energy - using solar collectors.

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