

Turkmenistan's continental and dry desert climate offers tremendous potential for solar power plants. Especially in the regions Kuli, Gasan and the capital, Ashgabat, the surface receives the most usable sunlight in the CIS region (GTZ, 2009). In 2010, Turkmenistan had the world's fourth largest proven gas reserves, giving

The paper presents an analysis of the potential of solar energy in the regions of Turkmenistan. Based on the calculations of solar radiation in the regions of Turkmenistan, an estimate of the amount of solar energy received by the solar panel was obtained.

Gross, technical and economic potentials of solar energy are estimated at 1 billion GWh, 1 million GWh and 10 GWh respectively (Jorde et al., 2009). Another source puts the overall annual generation potential at 3.9 - 5.4 billion kWh (Energy Charter Secretariat, 2013a).

Abu Dhabi-based renewable energy developer Masdar and Turkmenistan's power utility Turkmenenergo have signed a joint development agreement for a 100 MW solar park in Turkmenistan.

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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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/m<sup>2</sup>), the total technical potential of solar energy amounts to 655 GW (Seitgeldiev 2018; UNDP 2014).

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 ...

Masdar, the UAE-based global renewable energy company, has signed a joint development agreement with Turkmenenergo State Power Corporation of the Ministry of Energy of Turkmenistan (Turkmenenergo), to develop a 100-megawatt (MW) solar photovoltaic (PV) plant, which will be the company's first project in Turkmenistan.



# Turkmenistan solar panel energy generation

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 losing export revenues. The government has realized this challenge.

Annual generation per unit of installed PV capacity (MWh/kWp) 0.5 tC/ha/yr 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 ...

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