Sudan best solar heating system

Where can solar energy be used in Sudan?
The optimal locations found in Sudan for utilizing solar energy were Wawa,followed by Kutum,Wadi Halfa,Dongola and Al-Goled due to their low costs of electricity,high clearness index and high levels of solar radiation.

Why is solar energy important in Sudan?
Solar energy is highly attractive as a primary renewable energy source that can contribute immensely to increasing energy accessin Sudan. The location of Sudan as part of sub-Saharan Africa enriches the solar potential. The average temperature ranges from 28 to 39°C.

Is solar energy feasible in Sudan?
Situated in the sunbelt,Sudan is one of the largest countries in Africa endowed with an extremely high solar irradiation potential. However,no workhas been done in the literature with a strategic context to study specifically the feasibility of renewable energy systems in Sudan despite the abundance of solar resource.

Which type of solar PV system is best for Sudan?
HOMER simulation results demonstrated that the optimal type of PV for Sudan is the Studer VarioTrack VT-65with Generic PV. The utilization of a solar PV system will avoid the production of approximately 27 million kg/year of pollutants and will reduce the cost of energy to USD$0.08746/kWh.

Can Sudan adopt solar power?
On the other hand,there is a promising potentialin adopting solar power in the country. Germany,the leading country in solar energy,averages less than 140 hours of sunlight per month in its sunniest city Stuttgart. Sudan's location allows it to receive up to 11 hours of direct sunlight daily,equivalent to 436-639 W/m2 of solar energy density.

What is the average solar insolation in Sudan?
The average solar insolation is 6.1 kWh/m2/day,indicating a high potential for solar energy use . The Northern State has been considered as one of the best parts of Sudan for exploiting solar energy. The climate in the Northern state is a typical desert where rain is infrequent and annual.

In addition to technical potential, the decentralized nature of renewable energy technologies (such as rooftop solar) means they can be used in distributed generation and off-grid systems, and hence contribute to scaling energy access, which is critical given the immense geographical size of Sudan.

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It argues that Sudan has great potential to secure a sustainable energy supply by switching to solar, wind, and geothermal resources. The central assumption is that Sudan"s diverse sources of renewable energy (RE) are not being exploited to their full capacity.

The identified optimal solar PV system was then simulated operating in 21 diverse locations in Sudan to discover which location would most efficiently yield the best amount of solar energy for Sudan.

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Sudan"s main energy source is biomass, mostly in traditional uses. Electricity constitutes only 2 percent of the country"s energy consumption. The national electricity grid reaches a half mil-lion households, less than 10 percent of the population; major and minor local grids serve another 5 percent. Consequently, the majority

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