Sudan wind power generation system

Can Sudan use wind energy?

Though Sudan's past experience with wind power industry has not been successful or strictly speaking has not been exploited properly,the country still has very promising potentialfor using wind energy. A wind measurement campaign in year 2002 investigated and identified the feasibility of electrical power generation by wind energy.

What is a good start for a wind power project in Sudan?

One good start where both Sudan decision makers and any respective stakeholders may want to begin with and adopt for any potential Wind Power project,would be the Planning Policy Statement 18"Renewable Energy" (PPS 18). The objectives of the policy include:

Does Sudan have a wind farm project?

As discussed earlier,Sudan's past experience with wind energy has been quite limited however not far away,in Kenya,more specifically in Lake Turkana Wind Farm project-the largest wind farm project in the African continent,many good practices and examples can be learnt from and referred to for any of Sudan's future projects.

What is the average wind speed in Sudan?

14. Conclusions Mean wind speeds of 4 m s -1are available over 50% of Sudan,which suited for water lifting and intermittent power requirements,while there is one region in the eastern part of Sudan that has a wind speed of 6 m s -1,which is suitable for power production.

Why does Sudan have a lower wind potential?

This is due to the cubic powerin the relationship between wind power and wind speed. The wind potential in Sudan is proportional to the latitude; the higher the latitude,the greater wind potential. In other words the regions below 9°?N (tropical region) have lower wind potential than the region above 9°?N.

Can a mechanical wind pump be developed in Sudan?

The presented work on development of a mechanical wind pump has going on in Sudanfor several years. It is based on a multi-bladed rotor with high efficiency. The aim has been to develop a wind pump,which needs limited service,and maintenance; and meets for mass production in Sudan.

Furthermore, Sudan practices potential wind power, and the wind speed in Sudan at 50 m height varies between 5.1 and 7.1 m/s. According to the wind power analysis that had been carried out for 25 ...

p.6), the country still has great opportunity to exploit wind power to supply electricity to the remote areas through off-grid systems. In addition to the generation of electricity, a number of conducted studies over wind pump systems in The Sudan have concluded to the huge potential these pumps can play in

The terms "wind energy" and "wind power" both describe the process by which the wind is used to generate mechanical power or electricity. This mechanical power can be used for specific tasks (such as grinding grain or pumping water) or a generator can convert this mechanical power into electricity. ... Small turbines can be used in hybrid ...

14 June 2021, KHARTOUM: A 63m-tall wind turbine has crossed Sudan"s Northern State, marking the first milestone towards the country"s first commercial-scale wind-energy plant. Construction will begin shortly and is estimated to ...

keen to upscale generation of on-grid electricity from wind. Omene Energy, an IPP, is currently developing 500 MW of wind power along the Red Sea coast (REEEP, 2012) (Omer, undated). Geothermal There is about 400 MW of potential geothermal energy in Sudan (REEEP, 2012). Geothermal potential is located in different regions around the country.

The Global Wind Atlas is a free, web-based application developed to help policymakers, planners, and investors identify high-wind areas for wind power generation virtually anywhere in the world, and then perform preliminary calculations.

wind power density is between 285 and 380 W/ m2 which implies good resources for wind power generation. There will be need to attract private investment to develop this sector (REEEP, 2012). Geothermal The location of South Sudan in the vicinity of the East African Rift System is a high indicator of geothermal potential which the government

Sudan currently has plans to develop utility-scale wind farms in three regions, Dongola (100MW) in the North, Nyala (20MW) in the West and the Red Sea coastal region (180MW). The project ...

Evaluating the wind resources in Sudan is of paramount importance for advancing wind power projects. This assessment constitutes a crucial step in enhancing energy security, alleviating environmental issues, and effectively addressing the prevailing electricity crisis. However, due to the lack of meteorological data including wind speed, gridded satellite data ...

This is mainly to get data on the quality of the wind resource at different locations in the country and investigate its suitability for the development of wind power generation projects of all sizes.

This study describes a grid-connected PV-wind hybrid system"s comprehensive design, control strategy, and performance assessment in Dongola city located in Sudan"s ...

14 June 2021, KHARTOUM: A 63m-tall wind turbine has crossed Sudan"s Northern State, marking the first milestone towards the country"s first commercial-scale wind-energy plant. Construction will begin shortly and is estimated to take two to three weeks. Funded by the Government of Sudan and the Global Environment

Facility (GEF), with support from UNDP, ...

Although the results showed the optimality and cost-effectiveness of the PV-diesel system in Pakistan, Ethiopia, Algeria, Iran, and China, the absence of wind power generation in the hybrid energy ...

This marks a significant step in bringing Sudan closer to a more sustainable and green future. ... initiative designed to support removal of barriers to the adoption of utility-scale grid connected wind energy in Sudan. This project will follow a system approach to integrate energy policy analysis within the broader developmental objectives and ...

a, The study area consists of Ethiopia, Sudan and Egypt, and includes all the current and future locations for hydropower, solar power and wind power generation considered here. Major lakes are ...

A report by Musdag El Zein, graduate from the MSc. in Sustainable Development program at Uppsala University in Sweden and a contributor to this blog, investigated the policy ...

Wind resources are of the highest quality in the north, the east, and the southern regions [1]. This study concentrates on Sudan as one of African countries; that possess a good potential in wind...

The use and comparison of a deterministic, a stochastic, and a hybrid multiple-criteria decision-making method for site selection of wind power plants: An application in Turkey. Wind. Eng. 2020, 44, 60-74. [Google Scholar] Fadlallah, S.O.; Benhadji Serradj, D.E. Determination of the optimal solar photovoltaic (PV) system for Sudan. Sol.

The first wind turbine in Sudan will provide power to 14,000 people. It will also demonstrate the potential for sustainable energy generation in Africa"s third-largest nation. Tractebel is providing support for the tendering process and ...

The Public Electricity and Water Corporation (PEWC), part of Ministry of Energy and Mining (MEM), is the national enterprise responsible for the generation of the bulk distribution of electric and water in Sudan. The present capacity of the national grid is about 400 mega watts [10]. There is no country-wide interconnected grid system.

This article was first published in renewablesinafrica on January 6, 2020.. Sudan is a big "untapped" renewable energy market. Given Sudan"s immense technical potential for solar, wind, geothermal, biomass, and other renewables, coupled with a sizeable population and an escalating demand for energy to fuel economic growth, renewable energy is ideally ...

Sudan faces an electricity supply shortage despite its abundant natural resources. This paper aims to manage these resources for sustainable power generation to meet Sudan"s electricity demand. The sustainability ...

Dongola, a city in Sudan"s northern region, is the focus of this research. It is located at 19.1461 o N, 30.4703 o E. The city has been identified as one of the optimal places among other 21 ...

The theoretical maximum amount of energy that could be extracted was first calculated by Betz [21] for a horizontal axis wind machine and comes out to be 59.3% [5] of the total energy from the wind. This is known as Betz efficiency. Applying Betz"s efficiency factor to the derived formula of the power available in the wind [5], the theoretical maximum power that ...

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