Smart energy grids Sudan

Does Sudan have a problem with electricity supply?
Sudan is currently facing a major problemwith electricity supply. According to the report " Tracking SDG 7: The Energy Progress Report (2021) ",only 54% of the population in Sudan have access to electricity; this indicates more than 20 million people aren't connected to the national electricity grid .

Who are the main electricity companies in Sudan?
These include the Sudanese Thermal Power Generation Company (STPC), the Merowe Dam Electricity Company (MDEC), the Sudanese Hydro Generation Company (SHGC), the Sudanese Electricity Transmission Company (SETCO), and the Sudanese Electricity Distribution Company (SEDC).

How is electricity subsidized in Sudan?
The financial operation of Sudan's electric system is heavily subsidized. The retail tarifof electricity has not changed since 2004. This has led to an intensification of the level of subsidies as the revenue from customers does not cover the full cost of providing electricity service.

Does Sudan have a low electricity access rate?
Even though the energy access rate is low; Sudan is making progress in electrification with annual growth over more than 3 percentage points after 2010; more than 70% of Sudan's population was lacking access to electricity at that time . Table 1 below represents statistical facts about Sudan's electricity access rate from (2000 - 2019).

Why is energy development important in Sudan?
Sudan faces many energy development challenges brought about by high electricity subsidy levels and climate-induced impacts on hydroelectric generation which has been decreasing at a rate of about 4% per year. Improving access to modern and afordable energyis a development priority for Sudan.

What is installed electric generating capacity in Sudan?
Installed electric generating capacity is comprised of renewable and thermal facilities. Over the period 2012-2017,total installed electricity capacity in Sudan has increased from 3.05 GW to 3.59 GW,an average annual growth rate of 3.3% per year (see Figure 2-3b).

5 ???· E-Distribuzione has completed a smart grids project to strengthen electricity networks in the city of Campania. Sectors. ... Smart Energy International is the leading authority on the ...

1 ??· Jamaica Public Service opens a "centre of excellence" as part of strategy for local and regional grid operators training and certification. Sectors. ... Smart Energy International is the ...

From independence until now, the complete disregard for the livelihoods of local communities and their

problems has been a steady feature of large energy projects in Sudan, such as hydropower dams. This neglect has ...

Establishing off-grid electrification technologies including "Pay-As-You-go (PAYG)" models and the transactive energy distribution technology can offer a resilient energy supply to reduce the peak load at the national ...

Smart grids enable bi-directional energy flow, allowing consumers with solar panels or other renewable energy sources to feed excess energy back into the grid, optimizing overall energy distribution. AI algorithms can predict energy generation from renewables by incorporating data from weather forecasts and seasonal averages and can ...

Smart grids are one of the key pillars of the energy transition due to their economic, environmental and social benefits. Their role is even more crucial in the context of electricity distribution, as they are an enabler for the integration of renewable energy on a local scale and promote the electrification of consumption.

Co-supplying the National Grid: An Assessment of Private Off-grid Electricity Generation in Juba-South Sudan, a 2020 study by Lemi and La Belle, states that the electrical sector is vertically integrated, with SSEC in charge of all aspects, including grid administration, transmission, distribution, tariff setting, and power purchase from IPPs ...

Still, both smart grid approaches lead to the same goals, which are: (i) the grid"s ability to make decisions on its own; (ii) communication between the grid"s parts and actors; (iii) multiple ways to send energy and information about it; (iv) easy control and operation of a variety of distributed energy sources with different power ratings ...

2 ???· GazelEnergie and Q ENERGY have inaugurated their 35MW/44MWh energy storage project on the Emile Huchet site in Saint-Avold, Moselle, France. The battery project will provide services to the electricity grid via RTE, France´s transmission system operator.

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Smart grid solutions can optimise reinforcement investments and enable a more targeted, efficient allocation of resources. Edge computing and artificial intelligence are well suited to today"s grid challenges. ... Smart Energy International is the leading authority on the smart meter, smart grid and smart energy markets, providing up-to-the ...

Secondly, for the end-customer, increased energy usage in the off-hours and decreased usage in peak hours would mean a cheaper energy bill. Finally, the increased energy storage capacity of the grid would also enable the storage of energy by grid-connected, customer-owned distributed energy resources such as solar panels.

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The Energy Innovation Program"s Smart Grid call for proposals will provide support to the key technology, market, and regulatory innovations that address barriers in order to scale pilot projects into grid-wide deployments. ... Smart grids modernize the safe and secure delivery of electricity, provide foundations for new market structures and ...

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47% of the country"s rural population is currently connected to the electric grid (IEA et al, 2020). Sudan faces many energy development challenges brought about by high electricity subsidy ...

Issues such as interoperability, scalability, security and data privacy risks must be addressed to ensure the maximization of smart-grid potential [7]. This paper aims to explore the most recent developments in smart grid management for a better understanding of how AI, ML, IoT and optimization techniques can increase energy efficiency.

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