Sudan manufacturing energy storage

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For decades, factories in Sudan have been plagued by interrupted power supplies and programmed outages. The government"s persistent struggle to provide subsidized electricity to the residential and industrial sectors has left demand consistently exceeding supply, particularly during the sweltering summer months. This situation has not only crippled manufacturing economics but also placed a significant financial burden on the state as it attempts to bridge the colossal gap between the high cost of delivering electricity and the meagre revenues collected from tariffs.

"The ongoing power crisis has long been a chokehold on Sudan"s industrial potential," notes economist Dr. Ahmed Hassan. "Manufacturers are forced to divert precious capital into backup power systems, which erodes the competitive edge of locally produced goods and opens the floodgates to imported and often smuggled products."

The commercial and industrial (C& I) sectors have had to shoulder the added capital expenditures (CAPEX) for purchasing generators, transformers, and fuel storage tanks, as well as the operational costs (OPEX) for fuel, maintenance, and operating staff. These expenditures, compounded by a lack of economies of scale, have significantly strained their financial performance. The depletion of economic benefits once attributed to local manufacturing has paved the way for an influx of imported goods, further diminishing the viability of Sudanese industries.

The situation is even more dire in irrigated farming, where the prohibitive energy cost has made exporting agricultural produce a formidable challenge. "Farmers are squeezed by thin margins, where the cost of energy is the deciding factor between profit and loss," says agricultural strategist Mariam El-Nur. "The high cost of electricity has turned what should be a lucrative export market into a near-impossible venture."

Energy as a Service (EaaS) presents a promising solution amid these challenges. Providing the C& I sectors with an uninterrupted power supply, EaaS could relieve the government of the technical and financial burdens of maintaining the national grid. Additionally, this would free up more electricity--subsidized or otherwise--for critical sectors such as residential, education, and health services, ultimately fostering a more balanced and sustainable energy ecosystem.

Energy as a Service (EaaS) offers a technically viable and economically advantageous path forward, providing reliable, cost-effective, and sustainable energy to power Sudan"s commercial, industrial, and agricultural resurgence.

Sudan"s energy infrastructure, heavily reliant on thermoelectric power stations fueled by imported fossil fuels, is costly and inefficient. These power stations, which form the backbone of the national grid, consume vast quantities of fuel and place a significant strain on an already overburdened grid. Frequent outages and

transmission losses are common, particularly in high-demand areas like Khartoum North (Bahri) and Atbara, where power quality is critical for industrial and agricultural productivity.

Government subsidies on electricity aim to alleviate the financial burden on consumers, but they come at a high cost to the state, limiting the government"s ability to invest in more sustainable and resilient energy infrastructure. As Sudan rebuilds, these subsidies are increasingly unsustainable, highlighting the need for a more efficient and diversified energy strategy.

Energy as a Service (EaaS) is a business model where a service provider manages and supplies energy to consumers, typically through renewable energy sources like solar power. Instead of purchasing energy equipment or managing energy production, businesses and organizations pay for their energy, often at a fixed rate or through a subscription model. The EaaS provider is responsible for installing, maintaining, and operating the energy systems. Who Are the Players in EaaS?

Imagine a large factory in Sudan that requires significant electricity to run its operations. Instead of investing in expensive solar panels, batteries, and maintenance staff, the factory owner partners with an EaaS provider.

Energy as a Service, particularly when focused on renewable energy sources such as solar power, offers a technically superior and economically viable alternative to the traditional grid-dependent model. Here"s how EaaS can address Sudan"s energy challenges while supporting the country"s reconstruction and growth:

Reduced Transmission Losses: Solar parks developed under the EaaS model can be strategically located near industrial and agricultural clusters, such as those in Khartoum North and the irrigated agricultural zones. By generating power close to where it is consumed, EaaS projects can significantly reduce transmission losses, which are a persistent issue in Sudan"s current grid system. Solar installations within a 10-20 km radius of these clusters ensure more efficient power delivery and reduced energy costs.

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