

Khartoum solar container communication station solar power generation system 6 9MWh





Overview

Can solar energy be used in Sudan?

Harvesting solar energy using CSP technologies in Sudan will not only increase the electricity generation capacity but also guarantees energy security and sustainability through creating and implementing energy mix plans in line with the UNs' SDGs for 2030.

Are solar power towers and parabolic troughs 'hypothetically relocated' in Sudan?

The study used techno-economic analysis for two of the most mature CSP technologies - solar power tower (SPT) and parabolic trough (PT) technology - to produce electricity in Sudan. Two commercial CSP plants, namely GEMASOLAR and ANDASOL-1, have been "hypothetically" relocated in six Sudanese zones using the system advisor model (SAM).

Which solar-only plant produces the highest energy output?

A similar trend is observed for the solar-only scenario, where the GEMASOLAR plant has the highest values of annual energy output at zone1 and zone2 i.e., 140 GWh, whereas the solar-only GEMASOLAR plant in Seville produced the lowest energy output of 91.7 GWh. The DNI has the greatest influence on the energy outputs.

Which solar power tower system is best for Sudan?

Relocating GEMASOLAR and ANDASOL-1 in Sudan showed better outputs than in Spain. The solar power tower system is the most suitable for Sudan's environment. The LCOE at zone1 for the 50 MWe solar tower plant is 0.086 USD/kWh. A 5 MWe solar tower pilot plant at zone1 with optimum specifications is proposed.



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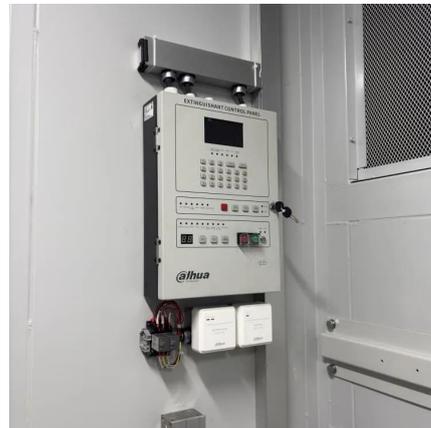


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