Commercial microgrids saudi arabia

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The Red Sea project is poised to be the world"s first fully clean energy-powered destination

Featuring a 400MW solar PV system coupled with a 1.3GWh energy storage system, the world"s largest photovoltaic-energy storage microgrid is currently being built in Saudi Arabia"s Red Sea Project.

Global technology giant, Huawei, is spearheading this ambitious venture, which is set to power this key hospitality destination being developed by Red Sea Global.

Built on the coast of southwestern Tabuk Province, west of the Red Sea, the project covers a planned area of 28,000 square kilometers. Upon completion in 2030, the Red Sea City is expected to have 50 hotels with 8,000 rooms, and more than 1,000 residential properties across 22 islands and six inland sites. It will also cater to up to one million visitors per year, and all of these visitors are set to benefit from off-grid, clean energy.

"The destination is poised to be the world"s first fully clean energy-powered destination, and Huawei is honored to participate in this project and help Saudi Arabia build a greener and better future through technological innovation," Alex Xing, president of Huawei Digital Power, Middle East and Central Asia, told Gulf Business.

The project will utilise Huawei"s FusionSolar Smart String Energy Storage Solution (ESS), a microgrid solution that will allow the Red Sea Project to independently meet its own power needs. The intermittent and fluctuating nature of solar and wind power makes energy storage essential for the safe and stable operation of renewable energy projects. In a bid to achieve this full reliance on renewable energy, Huawei"s ESS solutions will become a crucial component.

"Microgrids are not new to the power industry. However, the Red Sea Microgrid is unique because it uses only renewable sources of energy and it is completely disconnected from any external grid," said Xing. "As the pioneer in digital technologies, Huawei is one of the few solution providers offering state-of-the-art power electronic technology, forming and stabilising grids via virtual synchronising machines. This in-depth industry knowledge and solid experience enabled Huawei to accept the challenge of delivering such an ambitious project," Xing added.

Huawei"s involvement in the Red Sea Project aligns with its commitment to sustainability, technological expertise, and collaboration. "The Red Sea Project provides an unparalleled opportunity to demonstrate this commitment and showcase our industry-leading innovation and technology," said Xing.

"It"s a blueprint for sustainable cities. Through our collaboration with Red Sea Global, Huawei is leading the charge for a greener future, one microgrid at a time."

Apart from the Red Sea Project, Huawei is working on several major solar power developments worldwide. These projects span utility-scale plants, commercial and industrial (C& I) scenarios, and residential applications. "Huawei"s smart string and grid-forming ESS solution significantly improves a power grid"s ability to integrate renewable energy," Xing explained. "This can help address challenges arising from having high shares of renewable energy integrated into the grid at utility-scale plants."

In Dubai, Huawei recently helped establish a 25.8MW Distributed Program for Dubai Global Port Group. In China, the company collaborated with China Resources Power, China Electric Power Research Institute, and the Electric Power Research Institute of State Grid Qinghai Electric Power Company to pilot the world"s first grid-forming battery energy storage system (BESS). Meanwhile, in Thailand, Huawei built Asia-Pacific"s largest single-site C& I PV and ESS plant at Mahidol University, which includes a 12 MW PV system, a 600 kWh ESS, and optimisers configured for all PV modules from Huawei FusionSolar.

These projects highlight Huawei"s global reach and its goal of advancing renewable energy infrastructure. "We have also combined IoT, big data, AI, and other new ICT solutions to improve operations and maintenance by automating the fault diagnosis process for smart power plants," said Xing.