Doha microgrid benefits

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The new microgrid at the Doha-based QSE factory will entail energy sources, which include the local grid, solar panels, battery storage, back-up generators and cooling system, according to reports.

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Siemens AG will deploy the first microgrid of the Middle East designed for industrial use with Qatar Solar Energy (QSE) for cutting carbon emissions, reducing the cost of electricity, and having a more stable power supply. The microgrid will be situated in QSE''s factory in Doha. It will consist of energy mixes including solar panels, a backup ...

The Middle East faces a persistent energy challenge. The relentless heat poses difficulties, but a more recent and enduring issue is the region’s vulnerable energy infrastructure. Frequent power outages, especially in remote areas, disrupt daily life and hinder economic growth. As the region strives for a sustainable future, the potential of a more localized and cost-effective energy system - microgrids - is gaining attention.

Microgrids can significantly help countries reduce energy costs by providing a more efficient and flexible approach to energy generation and distribution, says Morgan Eldred, Founder at Digital Energy.

They can integrate locally sourced renewable energy, such as solar and wind, reducing reliance on fossil fuels and their fluctuating prices. Additionally, microgrids can enhance energy security and resilience, especially in areas with unreliable grid connections. Digital technologies like IoT and AI enhance the functionality of microgrids, enabling real-time monitoring, predictive maintenance, and optimized energy management, leading to lower operational costs and improved energy efficiency.

Another way microgrids help reduce energy costs is by minimizing grid power use during peak demand, thereby reducing reliance on expensive fossil fuels, says Dr. Meryem Hamidi, Sustainability & Smart Microgrid Researcher. “They generate power closer to consumption points, cutting transmission losses by up to 15% and improving overall efficiency. Compared to centralized grids, microgrids require less maintenance due to localized generation and storage systems, simplifying upkeep,” she adds.

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For Fazil Abdul Rahiman, Group Vice President of Sustainability and Climate Change at Abu Dhabi National Energy Co. (TAQA), many countries in the region are gradually increasing fuel bills by reducing subsidies. As the region’s energy demand grows, industrial and commercial sectors will likely face higher tariffs. A microgrid helps reduce utility tariffs, providing energy independence at lower rates.

Additionally, microgrids powered by cleaner energy sources can qualify for renewable energy incentives, and even non-green microgrids can benefit from incentives for reducing peak demand on the grid.

Despite the increasing share of cleaner energy sources, grids in the Middle East remain predominantly powered by fossil fuels, primarily gas. This reliance contributes to higher grid emission factors, resulting in elevated scope 2 (indirect energy) emissions for consumers importing electricity from the grid, adds Rahiman.

For industrial players, large commercial companies (some driven by global head office targets), and other customers with limited grid access, microgrids offer the most cost-effective means to achieve decarbonization goals, especially if utility tariffs are unsubsidized. With energy costs projected to rise, microgrids provide energy independence and stability.

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