

Saudi Arabia Microgrid Market – Segmented By Connectivity (Grid Connectivity, Off-Grid Connectivity), By Type (AC Microgrids, DC Microgrids, Hybrid), By Pattern (Urban, Semiurban, Rural), By Offering (Hardware (Power Generator, Energy Storage Systems, Controllers), Software & Service), By End User (Government, Utilities, Military, Healthcare, Commercial & Industrial, Others), By Region, Share, Trends, Opportunity, and Forecast, 2018-2028F

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Abstracts

Saudi Arabia Microgrid Market is anticipated to grow at a rapid pace in the forecast period 2024-2028. The technological advancements in control systems & advancements in energy storage technologies, together with government support and initiatives, have all contributed to the rise of the Saudi Arabian market. Growing preference and demand for renewable energy and uninterrupted power supply (UPS) among businesses is also boosting market growth. The IoT industry will expand faster because of the fast 5G rollout in Saudi Arabia and the ongoing digital transformation, which will lead to a surge in power generation and transmission use cases needing advance microgrid capabilities. Saudi Arabia offers strong fiber connectivity across the Middle East and is connected to several parts of the world, hence, creating microgrids demand to unprecedented levels in the kingdom.

Microgrids are small-scale electrical networks that can operate independently or in conjunction with the main power grid. Microgrids are used to describe small-scale power generation. A microgrid may connect to the grid and disengage from it, allowing it to operate both off-grid and connected to the grid. The basic purpose of microgrids is to

use renewable energy sources, such as energy generating and storage systems, to their fullest potential. They typically consist of a combination of distributed energy resources such as solar panels, wind turbines, battery energy storage systems, and generators. In emergency situations, it also serves as a grid backup. In most cases, they are situated at or close to the consumption locations and are managed by a microgrid controller. Microgrids are increasingly being used in a range of applications, from providing backup power for critical infrastructure to enabling communities to generate and manage their own energy.

Technological Advancements in Control Systems & Advancements in Energy Storage Technologies

The ongoing advancements in microgrid and its subsets such as microgrid control system technologies, including the use of artificial intelligence and machine learning, are improving the performance and efficiency of microgrids, and driving demand for these solutions. Energy storage provides numerous advantages, including balancing supply and demand, enhancing power quality, reducing the intermittency of renewable resources, and providing auxiliary services like frequency and voltage management in microgrid (MG) operation. The microgrid control system can use data analytics and predictive algorithms to optimize the operation of the microgrid and improve energy efficiency. The use of lithium-ion and magnesium-ion in their batteries while the development of advanced energy storage technologies and Battery energy storage systems (BESS), is enabling the deployment of microgrid solutions that can store excess energy and provide backup power during outages. The energy storage systems, such as Hybrid Energy Storage Systems (HESSs), which are characterized by the integration of two or more different energy storage technologies, have been developed as a way to achieve the right performance by combining the appropriate features of different technologies. Thus, technological advancements in control systems & energy storage technologies are leading to the growth of Saudi Arabia Microgrid Market in the forecasting period.

Government Support and Initiatives

Saudi Arabia (KSA) is supporting the development and deployment of microgrids through policies, incentives, and funding programs, ultimately driving growth in the market. King Abdullah City for Atomic and Renewable Energy (K.A.CARE) started developing an energy mix program in the past years to implement microgrid technologies in the Saudi Electric Power System (EPS). For example, the Saudi Electricity Corporation has signed two contracts with China Electric Power Equipment

and Technology Corporation and Al Gihaz Contracting Company, with a combined value of USD 720 million for a project to promote the installation of microgrids and other 60,000 smart devices to the kingdom's electricity distribution network. These contracts are aimed at advancing the development of efficiency and quality of electrical services in Saudi Arabia, improving the resilience and reliability of the power grid and shortening the duration of electrical disconnection. Moreover, in order to keep up with the global growth of microgrid systems, the Saudi Water and Electricity Regulatory Authority (WERA) is actively working to update and define a standard for microgrids. The Kingdom is focusing on creating a Micro Grid Assurance (K.A.CARE) standard for other research and technical institutions to help them carry out their activities effectively. For instance, The IEEE 2030 standard was proposed to replace the IEEE 1547.4 standard, which includes guidelines for understanding the interoperability of smart grids, the integration of communication architectures and power systems, and information technology architectures. This has brought great technical attention in advancing the microgrid, enabling the consumers to rely more on the technology. Thus, growing government support and initiatives have propelled the demand of microgrid in the Saudi Arabian market.

Growing Demand for Renewable Energy

The rapid growing concerns for protecting the environment and the proliferation of renewable energy techniques have brought the demand of effective energy management in Saudi Arabia. The microgrid can optimize the use of renewable energy sources and ensure that energy is available when needed. Many utilities service providers have invested in clean, renewable energy sources to run their existing and future facilities as a result of the rising electricity consumption, smart cities, data centre power usage, adoption of electric vehicles and the desire to reduce carbon footprint. The two main energy sources in Saudi Arabia are oil and natural gas, both of which have a negative influence on the environment. Moreover, initiatives such as King Salman's Renewable Energy Initiative and Vision 2030 call for the implementation of the National Renewable Energy Program (NREP) to fully exploit the country's renewable energy potential. The kingdom has amended its goal for renewable energy to attain 27.3 GW of capacity by 2023 and 58.7 GW by 2030. By 2030, Saudi Arabia aspires to transition toward a combination of 50 percent natural gas and 50 percent renewable energy, replacing the petroleum that presently supplies 42 percent of the nation's 110 gigawatt daily electrical demands.

Over the next ten years, Saudi Arabia is anticipated to receive an investment of more than USD 20 billion to produce renewable energy. The Ministry of Energy's spending

on power and renewable energy projects is expected to reach USD 293 billion by 2030. Furthermore, with response to the Saudi Green initiatives, the kingdom is planning to generate 50 percent of its energy from renewable sources by 2030 and intends to plant 10 billion trees in the upcoming years. An additional 40 billion will also be planted across the Middle East. Therefore, the growing adoption of renewable energy sources such as solar and wind power is driving the need for microgrid that can effectively integrate these sources and manage their variability. Thus, the growing demand for renewable energy is attributing the growth of microgrid in Saudi Arabian Market.

Market Segmentation

The Saudi Arabia Microgrid Market is divided into connectivity, type, pattern, offering, and end user industry. Based on connectivity, the market is divided into grid connectivity and off-grid connectivity. Based on type, the market is segmented into AC microgrids, DC microgrids, and hybrid. Based on pattern, the market is bifurcated into urban, semiurban, and rural. Based on offering, the market is divided into hardware and software & service. The hardware segment is further divided into power generator, energy storage systems, and controllers. Based on end user industry, the market is divided into government, utilities, military, healthcare, commercial & industrial, and others.

Market Players

Major market players in the Saudi Arabia Microgrid Market are S&C Electric Company Saudi Arabia, Siemens Ltd. Saudi Arabia, Eaton Arabia, Honeywell International Inc. Saudi Arabia, ABB Middle East, General Electric Saudi Arabia, Schneider Electric Saudi Arabia, Exelon Corporation.

Report Scope:

In this report, the Saudi Arabia Microgrid Market has been segmented into following categories, in addition to the industry trends which have also been detailed below:

Saudi Arabia Microgrid Market, By Connectivity:

Grid Connectivity

Off-Grid Connectivity

Saudi Arabia Microgrid Market, By Type:

AC Microgrids

DC Microgrids

Hybrid

Saudi Arabia Microgrid Market, By Pattern:

Urban

Semiurban

Rural

Saudi Arabia Microgrid Market, By Offering:

Hardware

Power Generator

Energy Storage Systems

Controllers

Software & Service

Saudi Arabia Microgrid Market, By End User:

Government

Utilities

Military

Healthcare

Commercial & Industrial

Others

Saudi Arabia Microgrid Market, By Region:

Eastern Region

Northern & Central Region

Western Region

Southern Region

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Saudi Arabia Microgrid Market.

Available Customizations:

Saudi Arabia Microgrid Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

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