

Energy storage for renewable energy manama

Countries such as the US, China and Australia have made considerable advancements in energy storage. They are far from alone, as the benefits of energy storage have become an urgent focus for countries across the globe. Now, countries in the Middle East and North Africa (MENA) region are making their own significant strides. By Rohit Kumar, associate director, and Gurleen Kaur, associate, Synergy Consulting.

Worldwide expansion of intermittent renewable energy sources, such as solar and wind power, has placed electricity storage systems on the verge of global expansion as energy storage systems (ESSs) can be utilised to optimally harness the power from the renewable energy sources.

Large-scale solutions such as pumped hydroelectric storage and stationary batteries are renowned for their ability to absorb power at one time for reconstitution later. Advanced battery storage options are increasingly being touted as the 24/7 answer to low-carbon energy solutions as they can balance the supply and demand for power almost instantaneously.

Though long regarded for their fossil fuel reserves, the countries of MENA are swiftly establishing themselves as global producers of clean, renewable energy. As the use of renewable energy continues to grow in scale in future, demand for energy storage as a method of stabilising wind and solar generation in the grid will increase.

Because of this burgeoning and lucrative - yet limited - technology, several entities are now exploring the vast benefits of energy storage to meet their power demands and improve the overall stability of their respective electrical grids.

* Managing intermittency in renewable supply - Perhaps, the most important driver of energy storage systems is the substantial growth in the amount of renewable energy being deployed around the world. In line with the rest of world, countries in the MENA region plan to have renewable energy as a major portion of their generation mix in the near future.

In Middle Eastern and North African countries, where sunlight and wind are in abundance, renewable generation is entirely dependent upon the shining sun and the blowing wind, which yield an inconsistent and unreliable energy supply. This intermittency has heightened the importance of energy storage throughout MENA.

Long-duration energy storage - solar-plus-storage - could potentially redirect power generated by these renewable systems during the day, allowing the plant to provide electricity at peak times using stored electrical energy.

The United Arab Emirates, Saudi Arabia, and Qatar, for example, have each benefited from the advancement in photovoltaic (PV) technology and have as a result developed utility-scale projects at competitive prices.

Throughout the region, the widespread integration of renewable energy in the overall energy mix will fuel the need for electricity storage solutions. Global information provider IHS Markit predicts a total deployment of 1.8GW of grid-connected energy storage by 2025.

In a 2017 speech at the World Economic Forum, Sami Khoreibi - CEO of transformative energy company Environmena - suggested that battery technology could potentially provide countries with self-sufficient, 24-hour electricity generation within the next decade. The implications of such a forecast are undeniable.

* Grid improvements - The electricity grid is a vast and intricate system, for which power supply and demand must be equal at any given moment. Balancing these components is essential for continuous power, and energy storage can play a critical role in this back-and-forth.

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