Oman gravity energy storage

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Nama Power & Water Procurement Company (PWP), the sole national buyer of all electricity and potable water output, plans to study options for developing energy storage capacity - a prerequisite for the optimal utilization of renewable resources in the Sultanate of Oman.

Widely hailed as a game-changer for economies transitioning to clean energy, energy storage allows for the storage of energy for use at another time, thereby enhancing grid reliability, curbing fluctuations in energy costs for consumers, and ultimately helping build a more resilient grid.

Storage becomes imperative when the renewable power source is, for example, solar and wind - renewable electricity from which is intermittent. But when integrated with energy storage, electricity supply is balanced out, ensuring seamless, uninterrupted power supply to industrial and other consumers.

With multiple gigawatts of renewable capacity envisioned for procurement in Oman over the coming decade, PWP - part of Nama Group - says it will evaluate the "potential role of energy storage technologies in Sultanate of Oman"s power system over the period from 2025 to 2040".

The study, it said, will focus on the "role of such technologies in supporting the transition from today"s predominantly gas-based system to a mixed system with a high renewable energy share consistent with Oman Vision 2040."

"A study will be initiated in 2023 to determine the optimal generation mix including storage optimization for the short- and long-term horizons," the capacity procurer noted in its latest 7-Year Statement detailing the outlook for power and water demand growth over the 2023-2029 timeframe.

However, pending a decision on the deployment of energy storage technologies, renewable energy development will be pursued as a combination of solar and wind based generation - a move designed to mitigate the variability and intermittency factors associated with these energy resources. Nevertheless, energy storage becomes necessary if these challenges are to be fully addressed.

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Among the most commonly deployed technologies to support energy storage is Pumped Storage Hydropower, say experts. It centres on the use of surplus power during peak generation to pump water into a reservoir located at a certain height. When required, the reservoir is allowed to drain out into a lower reservoir to produce electricity in the process, particularly when renewable resources are not available.

But rapidly gaining popularity around the world are Battery Energy Storage Systems (BESS), which enable energy from renewables, such as solar and wind, to be stored and then discharged when the power the needed.

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