Energy storage applications central africa

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The business case for battery energy storage systems (BESS) is becoming stronger and is one of the key solutions to effectively integrate solar and wind renewables in power systems. In this article, we examine how battery storage is the key to achieving a more sustainable renewable-powered future.

Recently, the International Renewable Energy Agency (IRENA) released a report which illustrates how energy storage technologies can be used for a variety of applications in the power sector, from e-mobility and behind-the-meter applications to utility-scale use cases.

At present, utility-scale battery storage systems in Africa are few and far between. However, case studies from around the world show that they can enable greater feed-in of renewables into the grid by storing excess generation and by firming renewable energy output. In the age of power cuts and loadshedding (as it is known in South Africa), battery storage systems can help provide reliable and cheaper electricity in isolated grids and to off-grid communities, which otherwise rely on expensive imported diesel fuel for electricity generation.

Globally, energy storage deployment in emerging markets is expected to increase by over 40% each year until 2025. The global battery energy storage market size is expected to grow from $4.4 billion to $15 billion and installations are expected to reach up to 1TWh by 2025. This growth is driven by the ever-expanding use and penetration of renewables and the drive for decarbonisation.

A conversation worth having, therefore, is around the economics of battery energy storage and how investing in large-scale BESS can help balance and support the grid. In light of this, Enlit Africa"s renewable energy and storage hub sessions show how to navigate the key technical and financial challenges of implementing BESS and what needs to be in place before considering investing in energy storage. The sessions also answer the frequently asked questions about BESS.

The answer is yes! In August 2022, a battery energy storage system proposed by Chile"s National Commission of Energy (CNE) was approved (despite much resistance) as a transmission asset. CNE proposed utilising the BESS instead of building a new power line. Used in this way, storage can enhance existing transmission lines or even serve as an alternative to building new transmission projects.

BESS have many uses: they can provide ancillary services (short injections of energy to regulate frequency and voltage and stabilise the grid as needed), power services (spare energy capacity when required), but they can also be used as a reliable transmission asset to avoid or delay building very costly infrastructure.

The purpose of using storage on the transmission system is to provide reliable services and system efficiencies just as conventional wires resources do. However, there is still a lot of work to be done. In many cases,

existing regulatory frameworks either prevent or inhibit storage from being proposed or selected as a transmission or generation solution that is eligible for the same treatment as other transmission assets.

Renewable energy has been pinpointed as one of the most efficient and cost-effective solutions to allow the move away from fossil fuel-based power systems to a net-zero carbon economy by 2050.

The key to a more sustainable renewable-powered future is battery storage. It is the pillar of strength that will create the needed baseload for a renewable energy-driven power mix.

We review the United Nations Industrial Development Organization"s biogas demonstration projects in Southern Africa and look at outcome insights that are aimed at strengthening the biogas market development in Africa.

This session will summarise and review data of planned and implemented demonstration biogas projects in South Africa over a 6-year period. The majority of the projects reviewed were intended for energy generation, followed by waste management and in some cases, a concurrent focus.

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