South africa microgrid operation

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Greater access to electricity and a reliable energy supply could play a key role in accelerating development across Africa. By integrating renewable energy resources like sun, wind and hydro into the power grid, microgrid technology like that supplied by ABB can support more reliable electricity supply, help avoid industry downtime and substantially reduce carbon emissions.

A key challenge Africa faces is supplying reliable electricity round the clock, especially to off-grid communities and industries. Across the continent, there is also an increasing demand for reliable energy access in combination with insufficient generation capacity. Nevertheless, the potential power that could be generated in some areas from sources like hydro, geothermal, wind and solar is substantial.

This is where microgrid technology comes into play. Microgrids consist of distributed energy resources and loads that operate in a controlled, coordinated way and are typically located at or near the place where energy is used. They have the advantage of being quick to build and can operate either as stand-alone grids or be connected to the main power grid. In sunny or windy places, microgrids can be powered by renewable energy, such as a small-scale solar farm or local wind turbines.

Not only does this mean that microgrid technology can be a means to reach electricity to remote or isolated areas, but with the technology for managing integration of renewables becoming much more affordable, opportunities to harness the power of these sources of energy could be tapped across Africa.

A new modular and standardized microgrid solution installed at ABB"s own premises in Johannesburg, South Africa is an example of this. It serves the power demand of ABB"s factory and offices by using power from the sun captured by a rooftop photovoltaic (PV) plant, in combination with a PowerStoreTMbattery-based grid stabilizing system, which allows for up to 100% peak penetration of clean solar energy. At this site in Longmeadow, Johannesburg, ABB has its South Africa head office, logistics and manufacturing center. ABB is also represented in several other South African cities, and has a strong presence across the African region with engineering and sales offices.

Another example of where ABB microgrid technology is making a difference on the African continent is for a remote windfarm called Marsabit in northern Kenya. Here the population of 5,000 relies exclusively on a wind- and diesel-powered microgrid.

Speeding up economic development

Microgrids have enormous potential in Africa, where more than 900 million people lack access to electricity. In sub-Saharan Africa, where two-thirds of the population - 620 million people - live without power, microgrids could dramatically speed up economic development.

"ABB is a pioneer in microgrid technology and providing uninterrupted power supply and reliable power is in line with our Next Level Strategy," explains Massimo Danieli, Managing Director of ABB"s Grid Automation business unit, a part of the company"s Power Grids division. "Microgrid technology is available now and it is likely to be a critical piece of the smarter energy future."

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