

## Industrial microgrids gaborone

Despite the power and connectivity challenges, Africa is an emerging powerhouse that will thrive on innovation in the data centre industry. Ed Ansett, Founder & Chairman, i3 Solutions Group, explains why the region's digital growth is an opportunity to think resourcefully about design and act differently in data centre operations.

Digital Realty (bought Teraco in 2022), Equinix (US\$320m acquisition of MainOne in December 2021 to expand in Ghana, the Ivory Coast and Nigeria) and Vantage (US\$1bn invested with plans for more) have all made significant market moves in South Africa and are pushing into new territories across the continent.

However, the growth of data centre facilities in both size and number across Africa inevitably raises concerns about their environmental impact. Globally, there is a need for the industry to take a more sustainable approach to minimise its carbon footprint and new builds in Africa present a sustainability opportunity which must not be wasted. Simply building as before and then fighting to get grid energy by relying on Africa's power generation mix that is heavily reliant on traditional sources such as coal, oil and natural gas is not viable.

Crucial for the industry is developers choosing to move away from conservative design approaches and adopting more sustainable practices. Only with energy-efficient technologies running from renewable energy dominant microgrids can data centres expect to significantly reduce their emissions profiles.

Of Africa's 1.2 billion population, roughly half don't have a dependable networked electricity supply. In Sub-Saharan Africa, two-thirds of people have no regular access to electricity.

This is being changed through the development of off-grid power systems. Much of this off-grid solar power is largely used to charge the more than 1 billion mobile phone handsets as people rush to get connected and online.

According to the GSMA The Mobile Economy Sub-Saharan Africa 2022 report there will be 613 million unique mobile subscribers by 2025, covering 50% of the population (of which 41 million will be 5G connections). Mobile is forecast to generate US\$154bn in economic value by 2025. Nigeria boasted 199.6 million mobile connections as of March 2022, according to the West African country's Communication Commission (NCC).

GSMA Intelligence data also showed that there were 108.6 million cellular mobile connections in South Africa at the start of 2022, equivalent to 179.8% of its population. Egypt's 98.29 million mobile users during the first quarter of 2022, represents 93.4% of its population. Yet currently in central Africa, 39% of the population lives outside a mobile broadband coverage area -- this figure is 16% for West Africa, 13% for East



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Africa and 12% in Southern Africa. In all, it is estimated that 43% of the entire African population is still without smartphone access.

Africa is not just a story of remoteness and rurality. Africa's 10 largest cities amount to 55 million people living in the continent's biggest metros. Building and running the data centres required to support the businesses in these metros and how they serve a growing and ever more connected population means facing up to new challenges from dealing with unreliable grids to finding sustainable energy.

The data centre sector should look to the "leapfrogging" efforts of the power and mobile sectors of off-grid power and network rollouts. In the power supply areas, industrial microgrids are being built around a combination of renewable sources (where available) and on-site engine-based power generation. Power companies are onto the huge opportunities for leapfrogging outside the major cities - avoiding vast and costly fixed power line investment by jumping straight to solar and wind for power generation and building community, rural and networked microgrids.

Beyond the direct resources that data centres can provide through district heating and cooling schemes from combined heat and power (CHP) systems within the facilities and feeding power to microgrids, data centres can also play a role in supporting social initiatives beyond their core operations.

In this respect, data centre developments hold the potential to be a catalyst for a host of power and connectivity investments. They can partner with sustainable, affordable housing developers. There are also many opportunities for partnering with local organisations to provide digital literacy programmes or supporting education and healthcare services in underserved areas, helping to bridge the digital divide and enhance overall societal well-being.

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