

Can telcom industry solve Africa's power problems?

By [Peter Karaszi](#)

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Africa is plagued by unreliable, intermittent and often non-existent access to electricity, especially in rural areas. This is a huge inconvenience and a big obstacle to economic development. Can mobile operators be the unlikely saviors, bringing power to the people in rural Africa?

Lack of power, inhospitable terrain, electricity theft, shoddy and neglected infrastructure, mismanaged power companies, dirty coal-fired stations, expensive power and frequent power cuts at best the list of Africa's power problems is long. According to the International Energy Agency (IEA), the overall electrification rate in Africa is less than 42%. In rural sub-Saharan Africa it is a shocking 14%.

To quote the IEA, "Energy alone is not sufficient for creating the conditions for economic growth, but it is certainly necessary. It is impossible to operate a factory, run a shop, grow crops or deliver goods to consumers without using some form of energy. Access to electricity is particularly crucial to human development as electricity is, in practice, indispensable for certain basic activities, such as lighting, refrigeration and the running of household appliances."

Government run electrification projects are painstakingly slow, for a variety of reasons. Some countries are actually moving backwards. In SA, as an example, Eskom lacks capacity and has been forced to introduce "loadshedding" (a nicer word for planned blackouts). However, there are some very promising new developments in power production coming from an unlikely source: the mobile operators.

Mobile operators are used to operate in rural Africa. They have base stations off-grid that need a lot of power, which has so far been provided by diesel-fueled generators. However, this is a very expensive (and dirty) way to power base stations. So mobile operators have started to introduce "green" power solutions for base stations, based on renewable energy sources (sun and wind).

There has in just the last two years been impressive technological progress in the efficiency of green power management solutions for the telecom industry. Better batteries for storage of energy and more sophisticated control systems e.g. more energy-efficient battery charging and usage of the various energy sources are two examples.

One clear indication that these solutions are taking off, is the recent announcement from Airtel in Nigeria that it will upgrade an initial batch of 250 diesel-powered base stations in Nigeria with E-site, a "green" energy solution from Sweden's Flexenclosure.

Taking the E-site solution as an example, it has proven to be able to power base stations by more than 90% using

renewable energy sources, over an entire year and considering all weather factors. Over long periods, there is actually more green power produced than is needed to power the base stations.

So power management companies, network suppliers and mobile operators are now contemplating what to do with the excess power produced, and whether more power can be generated for a small additional cost. The most obvious answer is to share it with the surrounding local communities.

From a government point of view there should also be considerable interest in alternative ways of providing power for rural areas. It would be much cheaper to sponsor additional infrastructure, e.g. solar panels at a telecom site for community applications like street lights and water pumps, than to expand the grid to remote locations.

At the longest running test site, in Dertu in Kenya, the excess power produced by E-site has for two years powered a cold-storage room for vaccines and other medicines that to date has helped more than 5,000 people in the area with snake anti-venom and vaccines for newborn babies.

A new initiative by Flexenclosure and Ericsson, the world's largest mobile telecommunications equipment vendor, is called Community Power. As a system it provides the possibility to share the power produced by E-site with the surrounding local communities to power e.g. mobile and battery charged street lights, clinics etc - in effect turning the site solution into a power station as well.

The Community Power solution in itself strengthens the business case for off-grid deployments for mobile operators. The handset charging dock eliminates the villagers' need to walk for hours in order to charge their handsets, while on the other hand the operator benefits due to higher utilisation of the network which increases revenues.

There are many alternative uses and social benefits for the excess power. Extending mobile communications and power to even more remote areas in developing countries will have a profound impact on the communities giving them the means to get information, communicate with their families, start and run businesses, and get access to banking services.

It will be the next step in the empowerment of people, and a mean for providing clean water, lighting, battery charging and power for private or business applications. A tool for self-uplifting is far better than passive handouts.

The blistering African sun and the strong desert and savannah winds are free. Africa is on the threshold of finally being able to harvest these clean and constantly renewable energy sources, not only for communications but also to bring power to its people.

ABOUT THE AUTHOR

Peter Karaszi is a communications expert in intelligent telecom solutions based in Cape Town, South Africa.

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