Pennies for a piece of the sun

Nigeria's epileptic power situation is prompting some companies to commoditise solar power to address an energy gap that puts an estimated 70 million people off grid and constrains millions of small businesses, writes ISAAC ANYAOGU.

Just opposite Tin-Can Island Port in Apapa, located west of Lagos Island, lies Sagbo Koji, in Amuwo Odofin Local Government Area, part of a cluster of fishing communities where whispering palms serenade the ears, and chirping birds perform to a standing ovation from fervent waves.

People in this community where worn shards of roofing sheets shield the sun and innocence finds company in the laughter of barely clothed children playing in the white sand, have no grid electricity. But for a paltry sum of money, they are getting a piece of the sun to power their homes at night and run small businesses.

Move farther inland, over 980 kilometres and almost 15 hours away from Lagos by road, the rustic town of Charwa-Chakum, in northern Kaduna State, has the idyllic calm of still waters. The colour of the road is the same as the coarse wall made from dried mud, which supports rusty aluminium roofing sheets of most homes, and the air inside has the taste of warm alkaline.

Dust storms fog the horizon as far as the eyes can see when the wind calls out the earth in a duel. The fiery sun seeps down boulders in the sky evoking a flood of perspiration from every pore in the body, clinging on damp clothes, choking, confining.

Yahaya Dakingari, the biggest tailor in the community, has bought a piece of the sun to light up his ten by twelve foot store, which doubles as his living room, powers his Singer sewing machine and charges his phone.

"I even listen to my radio while my machine rotates (works)," said the 42 year-old Dakingari through an interpreter, with glee in his eyes, as he presses the machine's foot control to the drumbeats of contentment. In Charwa-Chakum and surrounding communities, grid electricity is a tale children still listen to with a sense of awe.

Indeed, there is a quiet revolution taking place in rural Nigeria as well as pockets of city suburbs in the country. Smart companies like Azuri Technologies, Arnergy Solar Ltd, Lumos and few others others are literally selling a modest piece of the sun to power homes and small and medium scale businesses (SMEs) as patience for grid power begins to wear thin.

In some remote communities visited around Lagos, Edo, Osun, Kaduna and Anambra states, small businesses are now saving up on fuel by installing solar panels on their roofs to power clippers and light fixtures, boot up desktop computers, fire up hair dryers, chill drinks or stop fishes from rotting with about N200 a day.

Depending on the mood of the sky, they are guaranteed between seven and ten hours or more, of uninterrupted power supply and they pay a cost small enough to keep them in business, meet the basic needs of their customers and turn a modest profit.

SMEs provide opportunities for Nigeria's over 25 million people (13.9 percent unemployment rate) without jobs even as the current recession has shed over 700,000 jobs according to Nigeria's national statistics bureau.

An economy that currently loses $29.3 billion yearly due to inadequate power supply according to a World Bank estimate, needs every intervention that can assist people create value.

Affordability and scale – as rules of the game

These companies are commoditising solar solutions for homes and small businesses giving consumers options to lease the infrastructure for up to 36 months or buy them outright. Customers pay a sign on fee of less than N27,000 and installation fee of N5,000 – N15,000 depending on location and vendor in exchange for different bundles including sizes of 60W- 500W with different rates daily or monthly.

Solar panels are provided with LED bulbs, battery, and cables. It can power standing fans, clipper, charge mobile phones, television, laptops, printers and some kinds of fridges. Outright purchase of the components range from N60,000 – N350,000 depending on size and vendor.

Some are building mini grid solutions in rural communities where people pay as low as N50 daily to enjoy electricity but the facilities are fully owned by the company.

"This innovative approach is serving those who have no access to electricity and we have seen value as sales of our solar home systems (SHS) is currently over 100,000 in Sub Saharan Africa," says Vera Nwanze, Azuri Technologies' general manager, Nigeria and West Africa.

They are using Pay-As-You-Go model enabled by the use of airtime credit and GSM-based machine-to-machine (M2M) connectivity to remotely control and monitor the solar home system usage, billing and performance.

In communities like Onibambu in Osun and Obayantor in Edo State, vendors are retailing recharge cards to feed phones and activate the solar systems. Some setups see customers input codes directly into the panel on the battery box they are supplied to recharge their systems. For while grid connection may reach only about 60 percent of Nigerians, 154 million people are active mobile phone subscribers.

Long confronted with the challenges of inadequate power, limited access to finance and an unstable economy, many SMEs in Nigeria, who are only a short crawl away from bankruptcy are been thrown a lifeline.

In a country where government policies are applied with awkwardness akin to using a sledge hammer to perform a surgery, SMEs merely contend with riding through every storm of policy vacillation, clinging to straws while clawing through a sludge of policy failure that threatens to bury them in its wake.

Scarcity of foreign exchange bites, support systems are weak and financial institutions have credit terms that would be criminal in a different clime. Nowhere does this reality appear more brutal than in the quest for electricity to power small businesses.

"Power situation is very bad, it is killing our business, to survive is a huge problem because of lack of electricity," says Ike Emmanuel, who runs a local barbershop in Lagos.

Twelve years on, Emmanuel employs four barbers and a cleaner, earns about N5,000 daily from which N1450 goes to paying for 10 litres of fuel every day for generators with power ratings below 2KVA. He pays his workers N2,000 and still coughs out N1000 every two weeks to service the generator that runs sometimes daily throughout an entire week. He has switched to solar and reports better returns.

Femi Adeyemo, the CEO of Arnery Solar Limited and one of the company's founder, who provided the solar option, says of their method, "We carry out energy analysis to find out our customer's energy needs. We have commoditised solar up to 100KVA so you can run businesses completely off grid, but if the need is more than what was provided,with 10 per cent mixed with diesel, it makes economic sense."

Nigeria's energy demand will hit N250, 000MW by 2030 but data on fuel spend by businesses to power generators is expectedly difficult in a country where the people can't even agree on how many they are.

But a report by the Good Governance initiative, a non-governmental organisation advocating uninterrupted power supply in Nigeria gives a clue. The organisation says that Nigerians spend N3.5trillion on fuelling their generators annually.

This is because the total installed power generation capacity in Nigeria, a country of over 180 million people is around 12,522MW; 85percent of which is gas-fired (thermal) and 15percent is hydro-generated. Nigeria achieved its highest peak generation output of 5,074MW in February 2016 before Niger Delta militants blew up gas pipelines that fed turbines in power plants.

Worse still an aging national grid connects barely half of the population shutting out over 70 million people. The grid can only support about 7,000 MW of power and operators report Aggregate Technical, Commercial and Collection Loss (ATC&C), which is a methodology for assessing the overall health of a utility, is about 40 percent, one of the highest in the world.

So, not only does Nigeria not generate enough power, the country barely transports half of what it produces. The consequence is high rate of rural urban migration leading to slums besides skyscrapers.

This also accounts in large part to the failure of small businesses within the first year of formation. Yet this need not be so in a country with about 600,000 MW of potential solar electricity capacity from just one percent of its 923,768 square kilometre landmass.

This belief is spurring investors, with support from the Bank of Industry (BoI) and the United Nations Development Fund (UNDP) to undertake projects like the 24KW solar microgrid for Onono-Anam, a remote village in Anambra West Local Government Area, of Anambra State.

This is improving the quality of lives of people in the community as solar light extends the night and increases sales as small business stay longer than the first crack of nightfall.

"I now stay till night and make more money," says 32 year old, Angela Ugwu, who operates a makeshift provisions store in Onono-Anam. Her three children scrawl on worn note books under the glare of a blazing LED bulb.

While big businesses have been reluctant to adopt solar energy due to the huge initial capital outlay required in buying solar infrastructure especially batteries (it takes as much as N3million to set up micro grid that powers all electric equipments in a duplex house), small scale solar solutions on the other hand are experiencing a boom.

In December 2016, Lumos Global, an off-grid solar firm operating in Nigeria, announced that it had acquired $90 million in fundraising, one of the industry's largest ever investment. It takes courage to convince investors to part with that kind of money; it even takes greater confidence in a business model to achieve the result.

The company soon went into a partnership with MTN Nigeria for mobile solar electricity supply to homes and small businesses using their mobile phones. Lumos sells energy-as-a-service through a solar home system (SHS).

Davidi Vortman, CEO of Lumos says that 150,000 people in 30,000 locations in Nigeria have already subscribed to their service. Vortman, can't hide a smile, when asked about the company's exploits in Nigeria.

"Nigeria seeks to achieve 30 per cent renewable in 2030, we are helping with that," he said at the recent Solar Future conference in Lagos.

It's not clear if this revolution is being televised as much as it should, but it certainly has the ingredient of every good revolution – a group of people angry enough to match outrage with action.

Scalable opportunities

There are over 1.3 billion people who are off grid all over the world and many are in Asia and Africa. Millions turn to unhealthy energy sources like diesel, generator and kerosene lamps, which are costly solutions that provide only negligible energy needs

PayGo solar has scalable potential in a country where an estimated 70 million people according to figures given by Yemi Osinbajo, Nigeria's vice president during the launch of Azuri-powered solar infrastructure in Abuja, in February, have no grid connection.

In October last year, Nigeria approved a draft mini grid policy which provides for permits and tariff approval procedures, which will ease the administrative burden on the mini-grid operator and ensure the process of obtaining the permit in a timely manner.

It does this by making permit optional for a mini-grid operator that distributes up to 100kW and for output over this amount up to installed generation capacity of 1MW, a permit will be required yet it will not hamper efforts of operators.

"The regulation will minimise risks in tariff changes, as tariffs would have been agreed in advance by the relevant parties, as well as other risks to protect consumers and investors," said Haliru Dikko deputy general manager in charge of Renewables, Research and Development of the Nigerian Electricity Regulatory Commission.

If the policy is approved, thousands of investors who are already looking to be equity partners in solar projects will be guaranteed return of their investments.

Nigeria has demonstrated interest in green investing through the issuance of the $100 billion green bond which is being delayed by the passage of the 2017 Budget to allow for subscription by Nigerians.

The concept of 24-hour electricity for most people in Nigeria seems too good to be true but small scale solar facilities are already assisting many on the lower rungs of the ladder achieve this as well improve their quality of life and sustain small businesses.