

Africa looks to solar for communities off the grid

November 21 2016, by Jennifer O'mahony In Dakar And Nicolas Delaunay In Nairobi



The opening ceremony of a photovoltaic solar farm in Bokoul, Senegal, last month

Above the sacks of seeds and coal, three kerosene lamps gather dust in the tiny shed that Kenyan chicken farmer Bernard calls home.

He prefers to use solar energy to light up his evenings, listen to the radio or watch television, after abandoning a diesel generator he said was

expensive to maintain and burned fuel too quickly.

"Solar panels are a good, cheap solution," he told AFP.

Across the continent, consumers are opting for their own off-grid solar solutions to power homes and small businesses, even as African governments unveil massive new solar projects seemingly every month to expand their grids.

According to International Energy Agency projections, almost one billion people in sub-Saharan Africa will gain access to the grid by 2040, but by that time 530 million will remain off-grid, almost comparable with the 600 million who cannot access power today.

Governments have ramped up their efforts: on Africa's Atlantic coast, Senegal last month inaugurated a massive 20 megawatt (MW) project that will deliver energy to 160,000 people, which President Macky Sall saluted as ushering in "a new, clean-energy era".

But Mouhamadou Makhtar Cisse, director-general of national utility Senelec, underlined upcoming problems in an interview with AFP.



Across Africa, consumers are opting for their own off-grid solar solutions to power homes

"We actually have an excess of 100MW of power," he said. "But we have a distribution problem. We have been thinking in terms of roads and railways... but not about electricity highways."

With around 55 to 65 percent of homes receiving electricity, Senegal's grid strength is above average for sub-Saharan Africa, whereas in South Sudan and Liberia this hovers between one and two percent.

But even in Senegal, neighbouring Mauritania and Rwanda, which have all invested in large-scale solar projects as the cost of panels tumble, the twin challenges of limited grids and Africa's demographics remain.

'Space for innovation'

"The grid and the off-grid are so far apart right now that it's creating a huge space for innovation," enthuses Andrew Herscowitz, coordinator for US President Barack Obama's Power Africa initiative.



Senegal now has an excess of power, though it still has a distribution problem

Power Africa, which identifies governments and businesses requiring sustainable and affordable energy and offers funding and expertise in more than 15 countries, has taken a particular interest in solar.

Power Africa is pushing this renewable source so that people "don't have to wait for the grid to arrive to them, they can access a company today and have a solar panel put on their roof," Herscowitz told AFP.

Half of sub-Saharan Africa's power is generated in South Africa, while north Africa has built effective grid systems that largely serve their populations with a constant flow of energy.

But for the rest, off-grid systems and the technology needed to make them reachable to the sub-continent's poorest homes have reached a tipping point in the last five years, spurred by advances that have lowered costs.

Lighting homes with kerosene and candles remains expensive, dangerous and polluting, but in Kenya micro-solar firms have brought power to 30 percent of the off-grid population.



Solar panels in Tafoughalt, in Morocco's eastern Berkane province

"A person can for the same amount of money they were spending to buy

kerosene just for that little flicker of light... use that money to buy a small solar panel that can power safe lightbulbs," Herscowitz said.

Simon Bransfield-Garth, CEO of British "pay-as-you-go" solar panel firm Azuri, noted that the cost per kilowatt hour for electricity in the West was around 15 US cents, while kerosene was 53 times higher and candles 105 times higher on average for African consumers.

Azuri and rival M-Kopa offer a package of solar-powered lightbulbs, radio, and phone charging ports for as little as 50 US cents a day.

Solar-powered televisions are available for a little more and fridges are expected to follow.

The firms have made their mark in Kenya, Tanzania, Uganda and Ghana, which also have the heaviest uptake of mobile money systems, allowing users to pay for these services automatically through cheap and easy-to-access bank accounts provided by telecoms firms.



Simon Bransfield-Garth (right) receives a sustainability award from Arnold Schwarzenegger in Copenhagen

In these markets, customers are often so sparsely distributed that even if they have the opportunity to connect to the grid, doing so is still often more expensive than solar packs.

Sunshine continent

Investment in the sun to feed Africa's grids is appreciable: by the end of 2014 output stood at 1,334 MW, more than ten times larger than in 2009 (127 MW), according to the International Renewable Energy Agency (IRENA).

As consultancy firm KPMG put it in a recent report, solar power is "the most widely available source of renewable energy in Africa", and could "bring energy to virtually any location in Africa without the need for expensive large-scale grid level infrastructural developments."

The uptake of solar still remains extremely low compared to coal and biomass, accounting for less than five percent of overall grid [power](#), but solar is getting cheaper and easier to install than ever.

Besides, most off-grid communities have no other option, as Africa Power's Herscowitz noted: "the amount of money needed to solve the energy deficit in Africa is hundreds of billions of dollars. No government has that money."



Barack Obama (left) talks with June Muli about solar power in Nairobi last year

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