

Project finance model emerges for African mini-grids

CrossBoundary Energy Access, a fund targeting mini-grids in Sub-Saharan Africa, closed its initial transaction, the first to treat mini-grids as a project financeable asset on the continent. inspiratia speaks with Humphrey Wireko, senior associate at the company, about the project.

Established earlier this year, CrossBoundary Energy Access (CBEA) is a US\$16 million (£13.2m €14.2m) fund with backing from family office Ceniath and the Rockefeller Foundation, unveiled its first transaction with developer PowerGen Renewable Energy for a portfolio of 60 mini-grids in Tanzania.

Through a special purpose vehicle – CBEA-PowerGen Assets Tanzania – CBEA committed to invest US\$5.5 million (£4.53m €4.96m) to purchase roughly 15 operating mini-grids from PowerGen and to acquire an additional 45 over the next two years. The portfolio will provide power to 34,000 people in rural homes and to businesses in the country.

CBEA's investment is backed by a US\$3 million (£2.47m €2.7m) results-based long-term loan from the [Renewable Energy Performance Platform](#) (REPP), a UK government-backed initiative managed by Camco Clean Energy to support the growth of renewable energy in Sub-Saharan Africa.

Albeit a small sum compared to utility-scale projects, the transaction is acting as a pilot to build confidence in mini-grids as an infrastructure asset and subsequently generate greater flows of investment into the sector.

Mini-grids in Sub-Saharan Africa are developed by small companies that will often finance projects on balance sheets or with grants from donor agencies. As a result, attracting significant long-term finance has proved difficult.

"Typically, projects can be too small to justify the due diligence costs for a mini-grid deal that is that is just US\$100,000 (£82,425 €90,180). It's not something that a DFI or infrastructure investor can justify," says Humphrey Wireko, senior associate at CBEA

Aggregation strategy

CBEA's strategy is to aggregate portfolios within the fund by replicating the transaction structure with other developers in different markets, building a portfolio of a scale that will allow CBEA to reach the larger ticket sizes that large investment institutions require.

CBEA has signed two agreements with PowerGen which it hopes to use as a basis to standardise contracts for other markets.

"With PowerGen, we are able to put an agreement into place which allows us to acquire all the assets in their pipeline based on minimum specifications we have put in place," says Wireko.

One agreement is a purchase-and-sale contract that outlines the conditions in which CBEA will acquire the mini-grids from PowerGen, including a prearranged purchase price and a developer earnout.

"If built to the minimum standards and outputs we've agreed to then PowerGen can be guaranteed that CBEA will buy those mini-grids," explains Wireko.

"Once bought, another part of the agreement entitles PowerGen to a revenue stream that is a percentage of the distributions from the SPV set up to purchase said mini-grids," he adds.

With these agreements, CBEA believes that developers will be enabled to scale their teams, operations and pipelines, as well as recycle the capital expenditure from building the projects.

The second agreement ties up the relationship between CBEA and PowerGen.

"Once the mini-grids are bought the developer steps into what we call an operating-services agreement, so the developer continues to be paid as an operator to provide customer services and maintain the asset," says Wireko.

The structure eliminates development and construction risk, making CBEA's risk profile reflect that of an infrastructure profile with long-term, inflation-linked cashflows that pay back over a period of 10 to 15 years.

"What we are working on doing now that the SPV is in place is to essentially replicate the structure. We can do so in Tanzania with another developer and also in other countries," comments Wireko.

"We have an Africa-wide mandate which allows us to look across the continent to find out which is the best market for us,"

Wireko highlights Zambia, Kenya, Sierra Leone and other west African countries as potential markets for entry.

Subsidies

Although the strategy for scaling CBEA's portfolio and mini-grid sector seems clear, it will not be without its challenges, particularly given the economic position of the business model's target end-customers. A balance between high costs and low revenues has to be struck.

"Because of the very nature of mini-grids and who they bring power to, the cost of building connections to rural communities is very expensive," says Wireko.

"On top of that, given that we're bringing power to rural consumers and rural businesses, the consumers' ability to pay for power is quite limited. So, the revenue per user per month is typically low," he adds.

Selecting which market to enter thus becomes dependent on existing incentives that will allow the private sector to work in tandem with any public capital that is in place.

"We typically look for some type of structured subsidy that goes alongside what our private capital will be bringing to the table," comments Wireko.

Regulatory frameworks

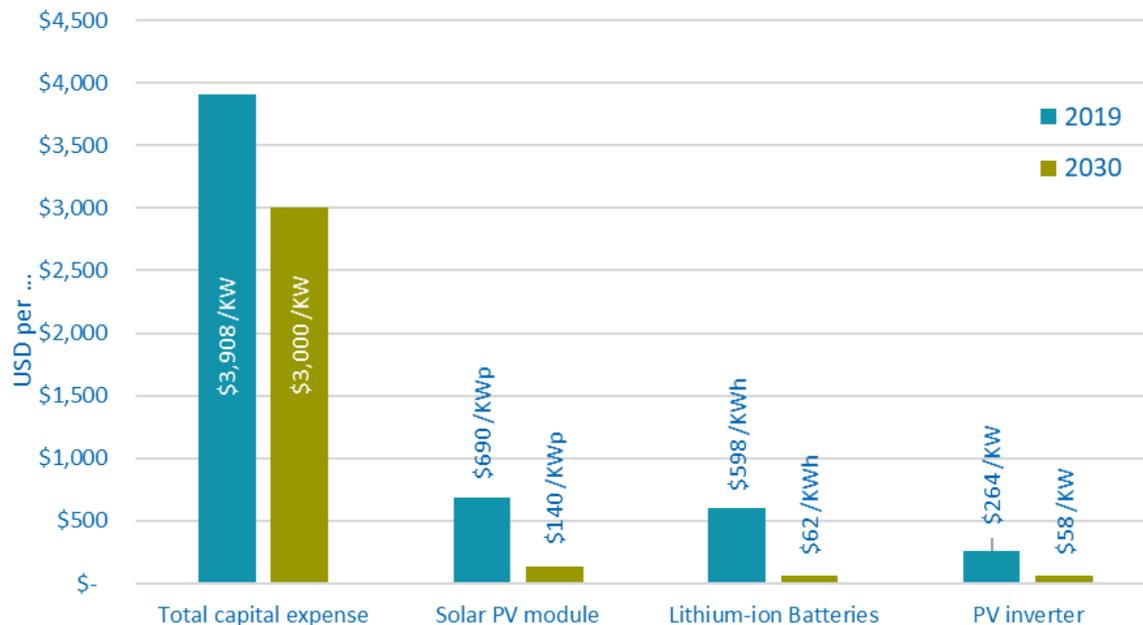
According to Wireko, African governments and donors typically subsidise the main grid by directing capital towards a state-backed utilities in order to achieve electricity access to rural customers. For example, Kenya's national utility Kenya Power and Lighting Company (KPLC) is connecting 4 million people through a grid densification program, funded by a US\$675 million (£556m €608m) subsidy from the World Bank and African Development Bank. If both governments and donors were to support mini-grid connections, considerable public savings could be achieved.

Mini-grids are considered more economically viable because they can serve remote communities with relatively high energy demand by mitigating costly extensions of the main grid. Mini-grids, depending on which country in Africa, have an estimated cost per connection of US\$1,000 compared to roughly US\$2,000 per connection for the main grid.

Tanzania's Rural Energy Agency (REA) has been running a results-based financing (RBF) programme for mini-grids funded by DFID and Sida. REA provides US\$500 (£412 €451) for new mini-grid connections, which generally speaking offers an estimated public saving of US\$1,300 (£1,071 €1,172).

Additionally, because most mini-grid systems are hybrids associated with renewables technologies such as solar, and increasingly battery storage, capital costs of components have fallen significantly – over 50% in the past eight-years according to the World Bank.

Cost of solar hybrid mini-grids, 2019-2030



Source: World Bank Group, *inspiratia*

As a result, a growing number of African governments are working to create regulatory frameworks to make mini-grids succeed commercially. This is currently implemented via rural electrification programmes (REPs).

These kinds of programs, according to Wireko, creates an opening for all types of private capital to enter and scale the sector.

"The private sector is directly engaging in the way you see mini-grids developers themselves bidding for these tenders, winning projects and building them out," says Wireko.

"Investors across the capital map come in with corporate equity, long-term infrastructure ownership capital like CBEA, and construction capital," he adds.

Separately in Nigeria, the [African Development Bank](#) approved a US\$200 million (£165m €180m) sovereign facility in November 2018 to the Nigerian Government to finance the Nigeria Electrification project (NEP). NEP is a World Bank-backed initiative to encourage a private sector-led approach to mini-grids and other off-grid solutions. It includes a tender programme that awards subsidies to private developers for the roll out of solar and or hybrid mini-grids across 250 sites in Nigeria.

An invitation for prequalification for NEP was published in April 2019. Up to 219 sites were eligible for bids according to REA documents. Pre-qualification submissions closed in July 2019.

Aside from REPs, Wireko shares that CBEA also pays attention to existing regulations such as whether developers are allowed to charge cost-effective tariffs to recoup their capital, and whether the government has a grid integration framework in place outlining interventions and compensation should the main grid arrive to mini-grid sites.

"Additionally, streamlined permitting processes for mini-grids are especially crucial as you're dealing with permitting potentially up to 50 mini-grids in comparison to one large power plant," concludes Wireko.

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