

# New approach to mini-grid finance as CrossBoundary closes first deal

New mini-grid fund CrossBoundary Energy Access has closed its first transaction, with PowerGen Renewable Energy in Tanzania. The company is using a new project finance approach to mini-grids which it hopes will help increase the availability of finance in the sector, writes **Dan Marks**

**C**rossBoundary Energy Access (CBEA) has announced a debut transaction that will see 60 mini-grids providing power to 34,000 rural households and businesses developed in Tanzania. The deal is the first project financing for a mini-grid, according to CBEA, part of the CrossBoundary Group, which is partnering with PowerGen Renewable Energy for the project. PowerGen was founded in 2011 and has built mini-grids serving more than 50,000 people.

CBEA, which describes itself as the first project financing facility for mini-grids, started up this year with \$16m of funding from the Rockefeller Foundation and family office Ceniarth LLC (*AE 389/10, 385/8*). It is investing \$5.5m in the Tanzanian project, backed by a long-term loan from the UK government-backed Renewable Energy Performance Platform (REPP), which is managed by Camco Clean Energy.

“We did some analysis and worked out that mini-grids are the least-cost option for at least 100m people in Africa, but there is a huge financing gap,” CBEA head of energy access Gabriel Davies told *African Energy*. “We need billions of dollars to flow into the sector by 2030 but between 2011 and 2018 only around \$250m has gone in. Our analysis was that the financing gap was due to a lack of long-term project finance.”

A special purpose vehicle owned by CBEA has been established in Tanzania for the project, which will purchase PowerGen’s 15 operating mini-grids and 45 planned grids as they begin operating. The structure is intended to enable investors and lenders to provide long-term financing for the mini-grid as an infrastructure asset at the same time as allowing PowerGen to rapidly reinvest the profits from selling the mini-grids upon completion.

“Mini-grids are often built by small companies, start-up companies and developers, who are building them on their balance sheet. You can’t invest in the asset directly, you have to invest in the mini-grid companies,” Davies said. “So the first step was to establish mini-grids as infrastructure assets, so infrastructure investors can invest in only the assets themselves. The next step was to de-risk these assets, so we only buy projects once they start operating. We don’t take development risk, permitting risk, construction risk, customer acquisition risk etc.

“But mini-grids are a very new kind of infrastructure asset. They’re very small – a single mini-grid might only be worth \$100,000 – so we need to aggregate those into portfolios. With PowerGen we are doing 60 and that gets you to \$5.5m, but to be honest, that’s still much too low for large institutional investors. So we do another level of aggregation with this fund by doing multiple similar transactions. If we have five or six at a similar size then you can reasonably talk to some of the bigger

institutional investors or development finance institutions.”

CBEA intends to reach this threshold quickly, committing the full \$16m equity from its initial raise by the end of the year. “Our first priority is to prove this model, prove that mini-grids are ready for project finance, prove that we can replicate the structure and the template contracts that we did in the PowerGen deal with other developers and in different markets. So we want to commit the \$16m that we raised for this pilot fund and we’re aiming to commit it by the end of this year,” Davies said.

The company has already set up an SPV in a second market and signed letters of intent with developers in Zambia, Benin and Sierra Leone. While equity for the transactions is provided through CBEA’s Mauritius-incorporated fund, debt is provided on a transaction-by-transaction basis, helped along by concessional mezzanine financing from the Rockefeller Foundation, which facilitated more equity investments by private investors such as Ceniarth and senior debt from REPP.

The developer role has been carefully structured. PowerGen will provide customer and asset management services, but its remuneration has been designed to minimise the need for excessive contractual obligations. “The best protection we have is to align incentives as much as possible, so that the developer building and operating the grids only makes money when we as the owner make money,” Davies said.

“We buy grids in cash equivalent to the value of the capital cost of the grid, but the developer’s profit all comes in the form of a share of the distributions from the SPV over the 15-20 year lifetime of the project. So while developers are able to recycle the capital they spent building the grid, they don’t make any profit unless the mini-grid operates effectively over 15-20 years. The same goes for the operating contract, which has a revenue-sharing mechanism so that costs are covered by the base fee, but the operator only really makes a profit if they beat certain revenue targets.”

### Subsidies needed

The Tanzanian mini-grids will benefit from a results-based financing grant facility for mini-grids run by the Tanzanian Rural Energy Agency. The facility is funded by UK International Climate Finance and the Swedish International Development Cooperation Agency. Despite problems attracting investment into the electricity grid, Tanzania’s regulatory framework has been effective in promoting one of the most active mini-grid sectors in Africa.

Results-based financing programmes tend to offer a fixed grant

for new connections. In Tanzania, the facility provides \$500 for every new mini-grid connection once it is active. In the CBEA structure, PowerGen will be the grant recipient and will receive the remainder of the connection cost from CBEA in the sale price.

CBEA, Ceniarth and the REPP were three of 12 investors calling for results-based financing mechanisms to be rolled out across the whole of Africa at the Africa Energy Forum in Lisbon last month. In a position paper, the investors said that although mini-grids were the least-cost electrification option for 290m people worldwide, according to the International Energy Agency, they were not currently viable in most cases without subsidies.

The other signatories to the paper were Acumen, Blue Haven Initiative, DOB Equity, Engie – PowerCorner, Hoegh Capital Partners, KawiSafi Ventures, responsAbility, SunFunder and Triodos Investment Management.

“We’ve looked across markets across history and we’ve never seen rural electrification delivered without subsidy, it’s always required it,” Davies said. “Typically, rural customers are the lowest income group in a country and have the lowest revenue potential. They also live furthest from the grid and are the most

dispersed and so have the highest cost of connection. The minimum value proposition of mini-grids is that you can connect more people for less subsidy [than the grid]. And their costs are continuing to fall because they are capturing these broad technological trends which are transforming the economics of delivering power remotely – solar, batteries, remote monitoring, mobile money, etc.”

According to Davies, in Tanzania it costs around \$2,300 to connect a rural customer to the main grid, whereas a mini-grid connection costs around \$1,000. Because around \$500 comes from the private sector for mini-grids, this equates to a saving to the public of around \$1,300 once the \$500 subsidy is taken into account. In this way, government spending on mini-grids in remote rural areas should result in many more people gaining access to power than an equivalent spend on grid expansion.

Whereas subsidies covering the capital expense of building a mini-grid and connecting customers help make more mini-grids viable and attract financing, they have a limited impact on tariffs for rural customers. Cross-subsidies to reduce operating expenses and lower tariffs are starting to be discussed as a way of keeping tariffs low. While this may be still some way off, capital subsidies will help prove the viability of the sector and provide the experience necessary to attract investment.



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