

Ex-post Evaluation of the Beyond the Grid Fund for Zambia (BGFZ)

Evaluation Brief

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Cover photo: Jason Mulikita for BGFZ

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NEFCO

**BEYOND THE GRID
FUND FOR ZAMBIA**

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Overview of BGFZ

The Beyond the Grid Fund for Zambia (BGFZ) was a multi-year program that sought to catalyse off-grid energy market development. Funding and contract management were provided by the Embassy of Sweden. REEEP was the main delivery partner, including providing technical assistance to the grantee companies. Nefco joined the delivery team in 2019.

BGFZ ran from 2016 to 2022 and was structured around three pillars:

- **Results-based finance grants** and advisory support to four energy service providers.
- **A platform for market change**, implemented through the **Zambian Off-Grid Task Force**.
- **Market data and information**, with the development of the **EDISON** data and MRV system.

The four companies supported by BGFZ spanned a range of technologies and business models.

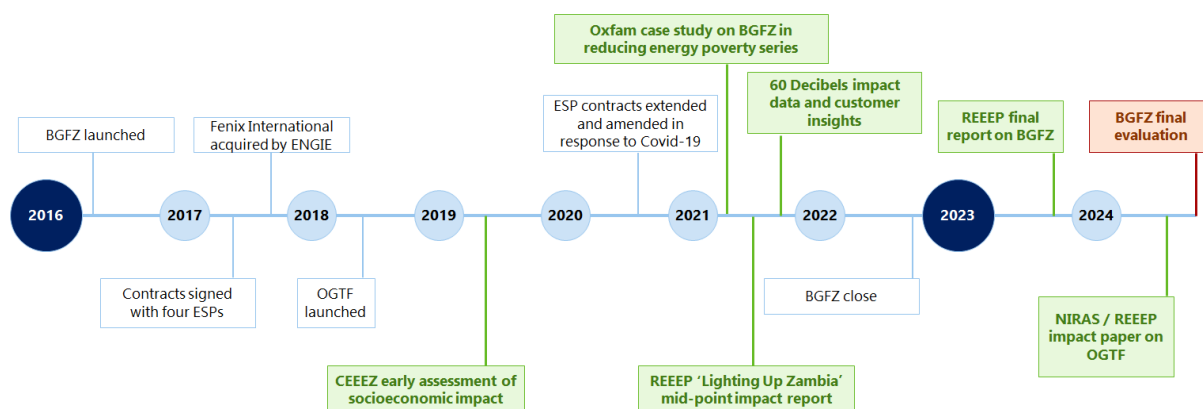
Vitalite is a Zambian based solar home system provider, operating at small scale but with an established product prior to BGFZ. Fenix International was well established in Uganda and was looking to enter the Zambian market. Supamoto was a locally based company which had historically focussed on clean cookstove and fuels and was looking to leverage its distribution network to offer both lighting and cooking solutions. Standard Microgrid was a micro-grid developer, connecting clusters of households and businesses to a local electricity distribution network.

Each company was provided with around \$2 million to \$3 million in phased grant payments.

Annual payments were made through a pragmatic form of results-based finance, based on both: (1) progress towards agreed unit sales targets, and (2) towards sustainable long-term business development. Technical Assistance was provided to the companies to help achieve these objectives.

The Off-Grid Task Force was operationalised since 2018 to coordinate activities and engage with policy makers. It is a meeting with a committee and sub-committee structure, which provides a platform for coordination and information sharing to identify opportunities to improve the policy and regulatory environment, and to help the private sector engage with policy makers and with financiers.

EDISON is a reporting and data analytics tool to enable both monitoring and reporting, and market intelligence. It was used for reporting on the BGFZ targets by the four BGFZ recipients and has subsequently been developed into the open source 'Prospect' tool.



Source: Greencroft economics based on BGFZ programme reporting

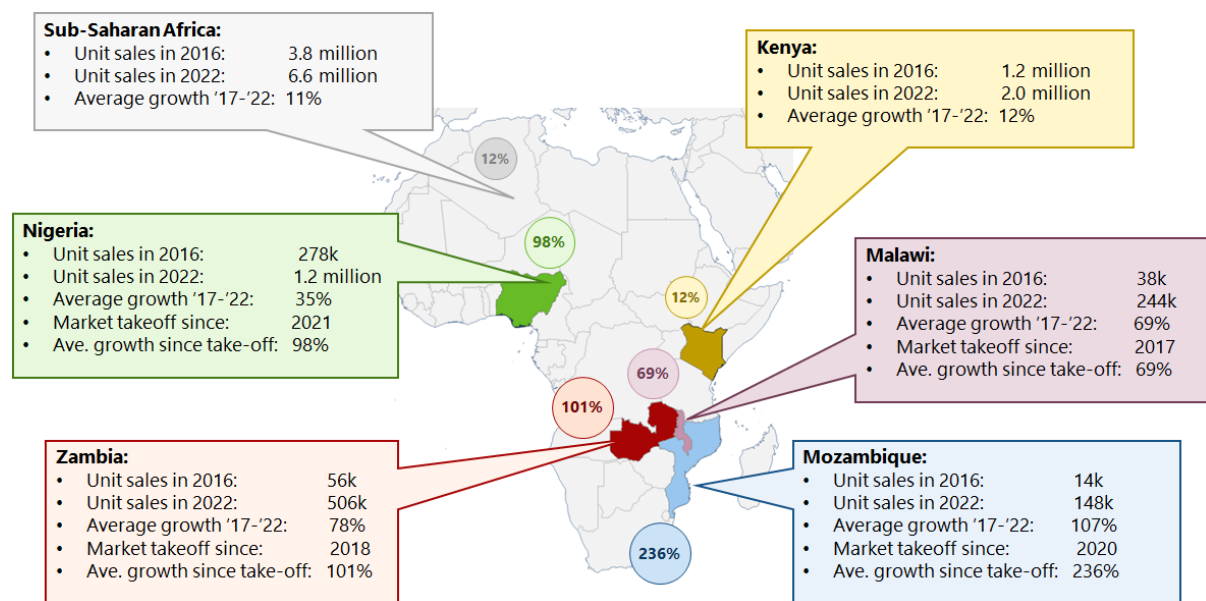
African off-grid solar market development since 2016

At the time BGFZ was designed, optimism ran high on the potential for accelerated development of off-grid solar markets. The 2016 edition of the Off-Grid Solar Market Trends Report expected 30% annual growth in product sales over the next five years. The emergence of the pay-as-you-go (PAYGo) business model offered a way to overcome affordability constraints by letting households spread their payments over time, and only based on usage of their solar home systems.

Since 2016, sales across Africa have shown only modest growth. Unit sales have flattened out across the continent, although there have been signs of the market bouncing back since the Covid-19 pandemic. As shown in the figure below, both continent-wide and in the biggest off-grid solar market (Kenya), annual sales growth between 2016 and 2022 averaged just over 10%.

Catalytic market development programmes have seen success in kickstarting markets. In Nigeria, there has been a boom in sales under the National Electrification Plan and Solar Naija programme, leveraging results-based finance and achieving 100% year-on-year growth in unit sales since 2021. Similar signs of market take-off have been seen in Mozambique since the beginning of the BRILHO programme in 2020, and in Malawi since a kick-starter programme in 2017.

Zambia has seen one of the longest and most sustained growth in sales since BGFZ came into force. Average year-on-year growth across 2019 to 2022 was over 100% – i.e. the market has doubled in size each year and in 2022 reached over 500,000 recorded sales.



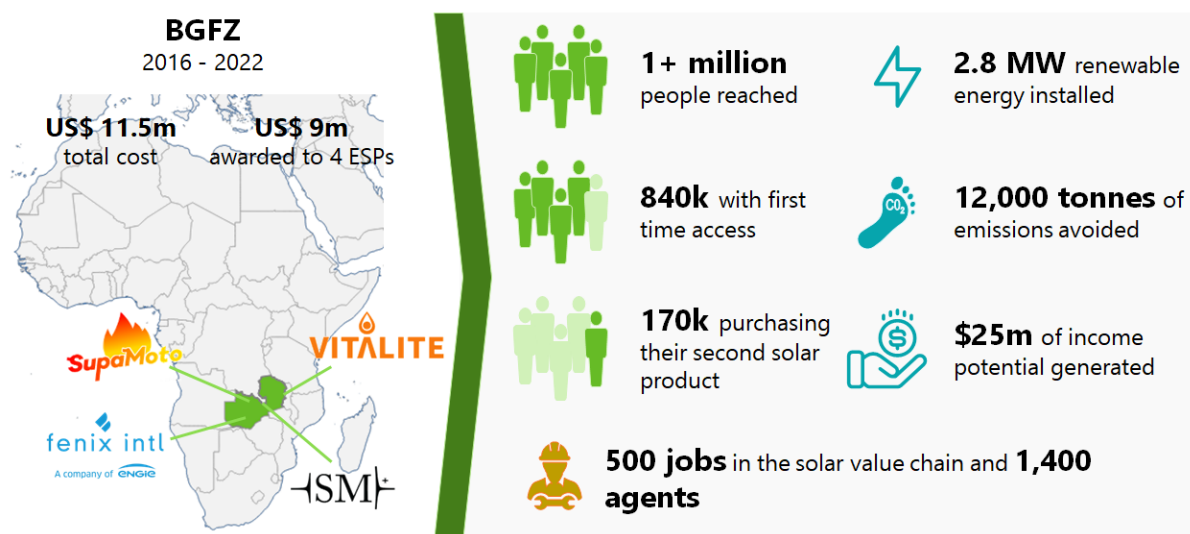
Source: Greencroft economics analysis of GOGLA half-yearly sales reporting data

Impact generated by the BGFZ recipient energy service providers

The BGFZ grantee companies have been highly impactful through accelerating access to energy for one million Zambians. The four grantee companies reached just over one million people by the end of 2022, of which around 840,000 were accessing a clean and modern energy product for the first time. This has been delivered through almost 3 megawatts of installed renewable energy capacity, avoiding around 12,000 tonnes of CO2 emissions by replacing kerosene lamps and dirty cooking fuels. Around 500 jobs within the companies have been created, which have also engaged networks of a further 1,400 sales agents.

Social inclusion has proved harder to achieve. Although BGFZ was only available for scale up in rural and peri-urban areas, the average income of the households served is just above the Zambian national average. That said, these people remain poor – with 60% living below \$3.10 per day. The challenge to reach further into poorer and poorest communities is that they are often both higher cost-to-serve, as in more remote locations, and lower revenue potential, as lower income.

There has been progress on outcomes for women working in the value chain and benefitting from accelerated access to household solar. By the end of BGFZ, women represented 40% of managers and 40% of employees, although just 27% of sales agents. Among end users, 34% are women, and women are also likely to benefit even where the purchaser was a man. The gender-sensitive design of BGFZ collected data disaggregated by gender, which has enabled the subsequent Beyond the Grid Fund for Africa (BGFA) programme to raise the ambition with respect to outcomes for women, including setting explicit gender targets and providing technical assistance support for companies to advance gender outcomes.



Source: Greencroft economics analysis of BGFZ internal reporting data and GOGLA standardised impact metrics

Findings from the BGFZ Evaluation

BGFZ was highly relevant and coherent with other programmes. It played a key role in supporting energy access objectives for Zambia, and is a cornerstone of Sida's Power Africa project, informing other pillars of Sida's work and helping expand the subsequent Beyond the Grid Fund for Africa and the Modern Cooking Facility for Africa programmes. It has proved a success in improving coordination between development partners and engagement with Zambian policy makers.

Overall BGFZ substantially achieved its objectives. Across the four recipient companies the total people reached exceeded the target of one million, and the co-finance ratio of 4:1 was exceeded. The Off-Grid Task Force was highly successful in coordinating policy reform.

However, success was to a large extent driven by one of the four companies. The other three fell significantly short of their targets. While this speaks to the importance of taking a portfolio approach, it also points to the risks inherent in these markets and the need to identify companies that are able to absorb catalytic finance and deliver sustainable scale up.

BGFZ was highly determinant in the realisation of these outcomes. All of the recipient companies were only able to achieve their scale up, or remain viable entities, thanks to the support provided BGFZ. No other grants of this scale or nature were available, and the regular cashflow provided by the annual payments was an essential match to the PAYGo business model.

The outcomes remain fragile and will need continued grant support. None of the three pillars has reached sustainability yet, nor a clear path to sustainability. This is not surprising given the market context. But it does mean that for the four ESPs to maintain their service to existing customers, and to scale up further to reach a customer base that is more remote and/or lower ability to pay, they will require substantial further grant support.

The data system proved complex and is yet to fully bear fruits. EDISON (now Prospect) is visionary and potentially highly valuable as an open-source toolkit. It will be used for MRV in BGFA and has a wide range of other possible applications for industry stakeholders. However, it has not yet achieved the functionality of its core purpose as a digital reporting and monitoring platform for the BGFZ (and now BGFA) companies, and through BGFZ it become apparent that delivery of such a sophisticated data tool or platform takes a lot of time and resources.

EQ 1	Was the programme design relevant to the context and changing market conditions?		2.5
EQ 2	Did the BGFZ programme align with strategic priorities (of GoZ, of SIDA)?		2.3
EQ 3	How relevant/ appropriate were the BGFZ programme's components?		2.5
EQ 4	How well did the BGFZ consider other interventions in Zambia in its design and implementation?		3.0
EQ 5	To what extent did the BGFZ achieve its objectives as a whole		2.3
EQ 6	To what extent did each sub-component achieve its objectives?		1.9
EQ 7	How consequential was BGFZ's contribution to the realisation of the objectives and outcomes?		1.7
EQ 8	Did partner agencies increase their capacities as a result of BGFZ?		2.0
EQ 9	How effective / cost-effective was the administration of BGFZ?		3.0
EQ 10	How cost-effective was each BGFZ component?		1.3
EQ 11	How impactful was BGFZ deployment of off-grid solar products on end users (households)		2.0
EQ 12	How likely is it that will outcomes will be sustained / continue to increase after BGFZ ends?		0.7

Source: Greencroft economics (2024) "BGFZ Final evaluation"

Lessons Learned

It can take a long time for companies to grow and to do so sustainably. This has implications for financial and non-financial support. For financing, it means focussing on the type and timing of cofinance raised by companies, not only on the volume. Taking on too much commercial debt too quickly can result in complications for companies to keep up with repayments. Securing the right blend of concessional financing, patient equity, and debt is crucial. For advisory services, providing a sounding board while companies find their path to scale up and profitability can be highly valuable. However, to drive concrete changes in the companies, technical assistance needs to be demand-driven, and embedded within the companies to identify challenges and offer solutions.

There is a risk of grant-dependency, which to some extent may be inevitable but which needs to be managed with care. Given the target customer market; rural African households, off-grid solar products are seeking to serve some of the lowest ability to pay customers living in the highest cost-to-serve regions. This means that some level of grant funding may need to be maintained, as it is bridging a fundamental affordability gap. On the other hand, there is a risk companies end up chasing grants, devoting effort and attention on raising what may be perceived as free no-strings-attached funding, rather than facing the discipline of commercial finance and on becoming commercially viable.

Recommendations

- R #1 Stay close to grantees and show pragmatism** – close working relationships and pragmatic funding is essential at a nascent stage of market development.
- R #2 Take a portfolio approach and have a high tolerance for failure** – there is no blueprint for success, so trialling a range of technologies, business models, and company types is important to build an ecosystem and accept some companies will fail.
- R #3 Take it slow and steady when it comes to raising co-finance** – companies should only raise commercial finance when they have strong and stable revenues and robust management to keep costs under control.
- R #4 Focus on establishing a commercial market which can provide a launchpad to target subsidies to boost impact.** Financiers need to be explicit in the trade-off between commercialisation and impact. Sustainable companies are essential to deliver long-run impact, but there is a tension between seeking profits, and serving the high(er) cost and low(er) revenue generating customer segments. Once a core commercially viable market can be established, targeted subsidies can enhance impact.
- R #5 Credibly commit to non-disbursement of funds** – companies must face a hard incentive to ensure the sector does not become dependent on chasing grants, and perceiving grant funding as no-strings-attached free money.
- R #6 Explore solutions to local currency volatility** – PAYGo companies are highly exposed to local currency depreciation, so will need solutions to collecting local currency revenues, while their costs and loans are typically in US dollars.
- R #7 Dedicate resources to overcome gender barriers in the workforce** – there are barriers to employing women at certain points in the value chain, which impose higher costs on companies; these may need to be addressed with grants from cooperation partners if companies are to be able to keep costs and end user prices as low as possible.