

Zambia: Stand-Alone Solar Businesses

Case Study: VITALITE Pay-As-You-Go Solar Home Systems

SITUATION DESCRIPTION

This Case Study describes the business model of VITALITE — the first provider of Pay-As-You-Go (PAYGO) Solar Home Systems (SHS) in Zambia. VITALITE is pioneering an integrated agriculture and energy approach, whereby in addition to retailing solar solutions and improved cookstove products, VITALITE offers its customers access to productive-use agricultural products and services including quality seeds, fertilizer, and solar irrigation equipment.

ABOUT VITALITE ZAMBIA

VITALITE Zambia Limited is a for-profit social enterprise founded in 2013 in Lusaka. The company provides renewable energy and agricultural solutions for the off-grid market in Zambia. VITALITE's mission is to improve lives by making quality products, services and renewable energy accessible and affordable to all Zambian households. Since 2016, VITALITE has installed more than 13,000 PAYGO SHS solutions, serving more than 60,000 people.

A significant amount of funding has been attracted at the time of writing, secured from a variety of sources, including an Energy and Environment Partnership (EEP)¹ grant, result-based grant support from Beyond the Grid Fund for Zambia (BGFZ)² and as a joint winner of the Business Plan Competition under the SIDA-PFAN Initiative for Climate and Clean Energy Financing (SPICCEF).³



ABOUT PAYGO SOLAR

PAYGO solar is a relatively new approach to the distribution of SHS units in Zambia for customers with low and irregular incomes. PAYGO solar distributors offer solar products that match the energy payment patterns of their target customers. Customers usually pay a relatively small down payment

- 1) The Energy and Environment Partnership Trust Fund, Southern and East Africa. Link: <https://eepafrica.org> – accessed April 2019
- 2) Link: <https://www.bgfz.org> – accessed April 2019
- 3) Link: https://www.sida.se/globalassets/sida/sve/sa-arbetar-vi-utvecklingsfinansiering/spiccef-flyer-with-logo_d3-1.pdf – accessed April 2019

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to receive a system and ‘top-up’ with pre-payments over time typically via mobile money. The technology can lock the solar system in case of non-payment. Some PAYGO models enable system ownership, while others provide energy as a service. The PAYGO technology offers customers an affordable means to access not only modern energy services but also financial services, as customers build formal credit histories with solution providers.

MARKET SEGMENTS AND SIZE

VITALITE targets energy poor, low income households in Zambia. The company estimates its total addressable market at 2 million households, approximately the entire off-grid market in Zambia, and aims to serve up to 10% of this market within the next 10 years.

TARGET CUSTOMER PROFILE

VITALITE’s target customer is any household that does not have reliable access to the national grid. A majority of these customers are rural smallholder farmers and those living in informal low-income urban and peri-urban areas, called “compounds”. Customers typically have a mobile phone and may have access to a mobile money account or can interface with VITALITE’s agents and distribution network for cash payments into the PAYGO platform.

BUSINESS MODEL⁴

Similar to other PAYGO solar companies, VITALITE **value proposition** to its customers include access to modern energy and financial inclusion, as well as a reduction in household energy expenditure. VITALITE’s integrated solar and agriculture approach extends these to include enhanced access to agricultural inputs and services, which may result in increased income.

The company’s **key partners** include its technology suppliers, mobile network operators and mobile money service providers, and distribution partners.

VITALITE’s **key activities** include: procuring, importing and distributing products, retail sales and marketing, customer registration, payment collection, after-sales customer support (including repairs and repossessions) and portfolio monitoring. Integrating these operations is an underlying IT back-end. For instance, geospatial mapping tools are used to identify best areas to recruit agents, and a specific app is used to monitor agents’ activity and performance.

VITALITE’s **customer relationship** is realized by its marketing, sales, transaction, and customer support processes. VITALITE markets its products through a mix of traditional advertising, billboards and radio, word of mouth and by community-based roadshows. Agents explain the product and PAYGO terms, while call centre staff ensure repayments and post-sales success.

In the VITALITE PAYGO transaction model, customers pay a down payment, and make usage payments which gradually pay off the remaining cost of the equipment. Payments can be made via mobile money or in cash by interfacing with VITALITE agents. When a payment is made, an automatic SMS is sent to the customer. The mobile money agent receives a commission for the transaction from the Mobile Operator, or is otherwise entitled to deduct the commission from received cash payments. The customer receives a unique code, which is entered into the system using an infrared remote control. The code enables the system to function for a defined amount of time, depending on the amount of the payment and the specific loan option that the customer has signed up for. Once final payment has been made, the unit is unlocked and no further payments are required. This approach does not require GSM (Global System for Mobile communications) and works in areas where there is no telecommunications network. In addition to the PAYGO model, VITALITE has begun serving customers via payroll-deduction programmes and through lay-away arrangements.

VITALITE operates several **channels** to customers, which include sales centres, commission-based agent networks, and distribution partnerships, such as with agrovets⁵ dealers. VITALITE invests significant effort in developing a professional, inclusive and supportive corporate policy and in selecting and training quality agents.

4) Adapted from the Business Model Canvas framework, Osterwalder and Pigneur (2010).

5) Agrovets are retailers of agricultural and veterinary products

VITALITE’s **revenue stream** is comprised of unit sales and repayments. VITALITE offers cash & carry, PAYGO, lay-away, and payroll-deduction sales models.

VITALITE’s **cost structure** is predominantly driven by inventory and consumer financing requirements, and the operational overhead of sales, marketing, distribution, and post-sales support. The company also supports the costs of a few key services, including back-end support for its PAYGO products, agent sales, and mobile money.

CORE SOLUTION OFFERING

The primary product offered by VITALITE is a 6 W lighting, radio, and phone charging package that forms a basic off-grid solution. VITALITE also offers: 20 W and 50 W SHS systems, improved cookstoves, agricultural inputs and solar water pumps. In addition, the company recently introduced the first PAYGO-enabled smartphone offering in Zambia. An overview of VITALITE’s PAYGO solar products is provided in [Table 1](#).

TABLE 1. Overview of VITALITE PAYGO solar solutions

SYSTEM	PV PANEL	BATTERY	ACCESSORIES
PSHS 7500	6 Watt	25 Wh	<ul style="list-style-type: none"> – 3 lamps – phone charger – radio
LSHS 4500	20 Watt	95 Wh	<ul style="list-style-type: none"> – 3 lamps – phone charger – radio – 6” TV – remote control
LSHS 10500	50 Watt	135 Wh	<ul style="list-style-type: none"> – 4 lamps – phone charger – radio – 23.6” TV – remote control – decoder

At the time of writing, to purchase the basic VITALITE PAYGO SHS solution — PSHS 7500 — customers provide a down payment of approximately EUR 16, and EUR 0.30 per day for one year. The solar products are fully warranted for four years.

PATH TO SCALE

From an installed base of just over 13,000 systems at the time of writing (end 2018), VITALITE plans to install more than 100,000 systems over the next four years. The company estimates requiring EUR 3,000,000 in equity and EUR 3,000,000 in debt investments to complement secured grants for the expansion phase. As the company is in a relatively early growth stage, it is not yet considering the establishment of an off-balance sheet structure.

Over the next four years, VITALITE anticipates providing an Equity IRR of over 20% to early stage investors. The key sensitivities that may impact potential returns include: the rate of sales growth; churn and the performance of the portfolio; the cost of debt, and the company’s ability to manage high growth and expansion.

ACKNOWLEDGMENTS

GET.invest deeply appreciates the time and effort spent by VITALITE to share data and information towards this case study. GET.invest expresses gratitude to all staff and individuals who reviewed the case study and provided valuable insights, guidance and feedback.

ABOUT GET.INVEST MARKET INSIGHTS

The first series of GET.invest Market Insights are published in early 2019 covering four renewable energy market segments in three countries, namely: renewable energy applications in the agricultural value-chain (Senegal), captive power (behind the meter) generation (Uganda), mini-grids (Zambia) and stand-alone solar systems (Zambia).

Each Market Insight package includes **a)** a 'how to' Developer Guide, **b)** Model Business Cases and **c)** Case Studies. The Developer Guide enables the reader to navigate the market and its actors, to understand the current regulatory framework and lays down the step-by-step process of starting a new project/business. The Model Business Case analyses project economics and presents hypothetical, yet realistic, investment scenarios. It hence indicates the criteria for a viable project/business to enable the reader to identify the most cost-effective project/business opportunities. The Case Study analyses the viability of operational or high-potential projects/businesses to highlight lessons learnt and industry trends.

GET.invest Market Insights therefore summarise a considerable amount of data that may inform early market exploration and pre-feasibility studies. It is recommended to cross-read all three products to gain a comprehensive overview. The products are accessible at www.get-invest.eu.

ABOUT GET.INVEST

GET.invest is a European programme which supports investment in decentralised renewable energy projects. The programme targets private sector business and project developers, financiers and regulators to build sustainable energy markets.

Services include project and business development support, information and matchmaking, and assistance in implementing regulatory processes. They are delivered globally and across different market segments.

GET.invest is supported by the European Union, Germany, Sweden, the Netherlands, and Austria, and works closely with initiatives and industry associations in the energy sector.

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CONTACT

GET.invest	Place and date: Brussels, June 2019
E info@get-invest.eu	Photo credits: © GIZ, except where otherwise indicated
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