

VILLAGE POWER SCALING RURAL ELECTRIFICATION IN UGANDA

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Village Power Centre
Source: Village Power

Village Power provides quality, affordable and accessible modern energy solutions to rural sub-Saharan Africans. Village Power sells a range of solar home systems supported by financing options. Annie von Hülsen leads strategy and special projects. Thomas Huth is the co-founder and CEO of Village Power, he has been involved in various start ups both as an entrepreneur and investor. Simon Koch, a Director, has over 6 years of experience in sales and business development.

KEYWORDS

- SOLAR POWER
- RURAL ELECTRIFICATION
- OFF-GRID

This paper discusses Village Power's role in the "Light Lwengo" project in Uganda's Lwengo District. Key learnings from this project focus on the design and implementation of subsidy schemes and the implications of becoming a Pay-As-You-Go (PAYG) provider to increase roll-out speed.

INTRODUCTION

Swiss based Village Power AG (VP) was launched in January 2014 to deliver reliable, affordable and accessible modern energy solutions to rural sub-Saharan Africans. Energy is a fundamental need, and one cannot benefit from other modern improvements to the standard of living without access to electricity. The purpose of each VP kit is to deliver reliable, safe, and affordable electricity to customers.

VP currently has operations in Uganda, Mozambique and Zambia and offers a range of Solar Home Systems (SHS) between 10W - 1,000W. By the end of 2015, VP had deployed over 4,000 SHS in Uganda. VP's SHSs consist of a polycrystalline solar panel, lead acid battery, and a charge controller with GSM device¹, complimented by connection cables and select efficient accessories such as LED light bulbs and mobile phone charging cables.

At its core, VP believes in founding its business upon partnerships that matter to achieve results that count. VP has therefore pursued an approach of partnering with local government entities and community associations that undertake to support the deployment of solar systems to their constituent bases. In a market tainted by poor quality components and unsupported systems, such partnerships with trusted local organisations offer credibility, foster trust in the brand, and offer access to our partners' constituents. In this paper, the set-up, impact, and learnings from one of VP's first projects, "Light Lwengo", is discussed.

The "Light Lwengo" project was launched in May 2014 by Uganda's President, H. E. Yoweri

¹ Only installed in Pay-As-You-Go (PAYG) systems.

Museveni. Locally it is supported by the Lwengo District Local Government Chair Person, George Mutabaazi. The project is part of the “Energy and Infrastructure Development Program” for the Lwengo District in Central Uganda. The program aims to develop Lwengo from “peasant” to “middle-class” status by 2025. “Light Lwengo” expands access to electricity through supporting the deployment of SHSs by VP.



Components of a VP SHS
Source: Village Power

1. CONTEXT AND PRESENTATION OF THE PROJECT

1.1. LWENGO DISTRICT

In 2009 (last census) the total population of Lwengo District was 254,362 living in 59,571 households, 70.6% of the population was under 30 (Uganda Bureau of Statistics, 2012). Agriculture was the main source of household income: ~68% of households cited crop farming as their main source of income; ~65% of households identified as subsistence crop farmers (Ibid.). ~20% of the Lwengo population lives on less than USD 1 per day (Lwengo District Local Government, 2015). 56.5% of the local population lived without access to electricity² (Uganda Bureau of Statistics, 2012) versus the Uganda-wide number of 85% (World Bank, WDI, 2010). The main source of energy for lighting was kerosene lamps (~44% of households overall, ranging up to ~83% in some areas), followed

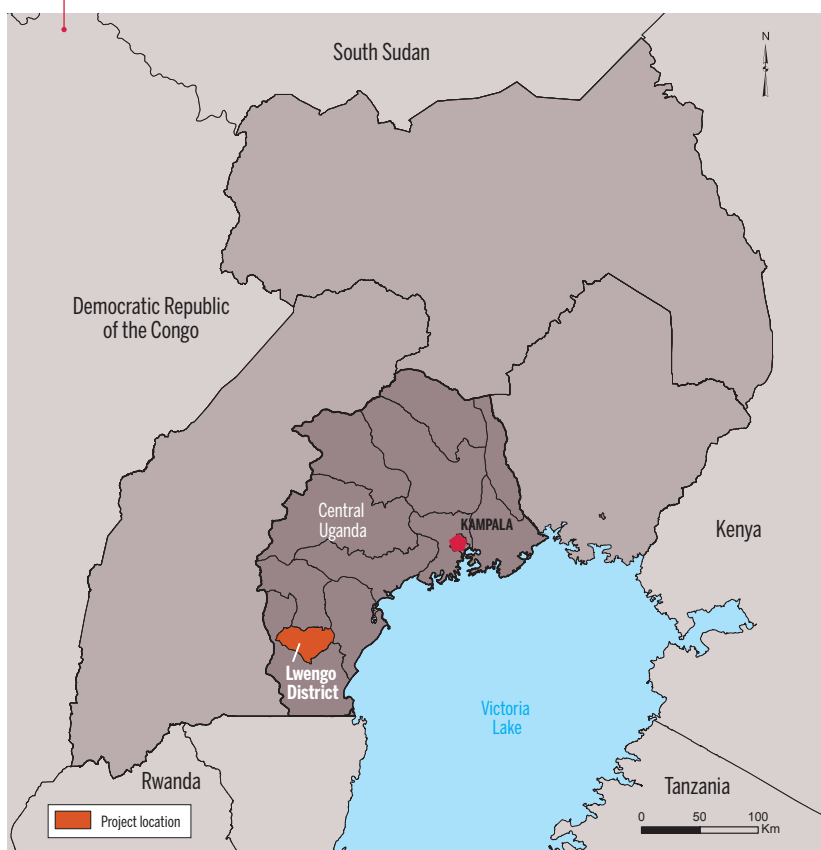
by electricity (~43.5%), and paraffin (~10%) (Lwengo District Local Government, 2015). The local government estimates an average spend of ~350,000 UGX per household per year on lighting and power³.

Table 1. Average spending on lighting/power

ITEMS	Monthly Expenditure (UGX)
Fuel for a lamp	20,000
Other	6,000
Transport	3,000
Total	29,000

² Including batteries, generators, mini-grids etc. Based on field observations, however, in towns and in rural areas, conventional electrification rates in Lwengo would be closer to 10%.

Figure 1. Project location - Source: FERDI



1.2. “LIGHT LWENGO” PROJECT DETAILS

“Light Lwengo” is a project of the Lwengo District Local Government and VP in partnership with Finance Trust Bank (FTB) and the Uganda National Entrepreneurship Development Institute (UNEDI). It was approved by Uganda’s Rural Electrification Agency (REA) to qualify for subsidies under the Photovoltaic Target Market Approach (PVTMA), funded by the World Bank Energy for Rural Transformation (ERT II) project⁴. It provides a generous subsidy to pre-qualified companies on the sale of each SHS to qualifying end consumers.

In order to pre-qualify, companies had to offer products meeting the PVTMA guidelines, approved by the Uganda National Bureau of Standards (UNBS), supplied with an instruction manual and backed by a 1-year warranty. Companies also had to show an installation track record.

Subsidy model

The subsidy is based on the size of a system’s solar panel : USD 5.50 per Wp for systems with panels up to 50Wp. Only sales to customers who live over 100m from the grid are eligible.

³ Information provided by the Lwengo District Local Government via email on 30/12/15.

⁴ <http://documents.worldbank.org/curated/en/2009/03/10378680/uganda-second-energy-rural-transformation-ert-ii-project>.

Under the project, VP sold the K-2 model: 40 Wp solar panel; 20Ah battery; delivered with four 3W LED bulbs and one mobile phone charger. REA undertakes to pay UGX 580,000 of each K-2 system valued at UGX 950,000. The balance of the purchase price to be paid by the customer is UGX 370,000. The project targeted the installation of 3,000 SHSs.

After a company makes a claim for a number of installations, prior to payment of the subsidy, REA undertook to inspect these installations to verify that they were complete and in compliance with the scheme. No timeframe for the completion of such inspections and payment of the subsidy was given.

Customer financing

The provision of financing is crucial to maximising the addressable market for SHSs, even at subsidised prices. Some studies have shown that access to finance can increase the addressable market from ~50% without financing to ~85% (AT Kearney/GOGLA, 2014a). However, since only 25% of the subsidised system sales⁵ and 10% of the non-subsidised system sales have been paid upfront, VP believes that the local addressable market without financing is much lower than 50% and the need for financing is high.

The project contract required the establishment of a credit facility for the purchase of SHS through Savings and Credit Cooperatives (SACCOs) or local Financial Institutions (FIs). VP partnered with FTB and established several SACCOs (government regulated⁶) and Village Enterprises (similar to SACCOs in function but unregulated by the government) to provide this financing for customers purchasing systems under the “Light Lwengo” project.

Working through the SACCOs, FTB provides loans with 24.15% interest and requires a down payment of 100,000 UGX. The customer may select a pay-off period of between 3 and 12 months but may pay-off the loan in full in advance if s/he so chooses.

The process to secure a loan at the individual level has multiple steps.

1) Establish a network of borrowing groups

- In the context of customers having very limited to no prior exposure to loans and financial services, a group approach is favourable to introduce an element of social pressure to the service of loans, and to streamline credit approval, administration, and customer contact. Additionally, the borrowing groups effectively serve as guarantors for their members’ loans.

- The existing network of “borrowing groups” was tapped into. Existing SACCOs were leveraged. Where local SACCOs did not exist, the establishment of Village Enterprise borrowing groups was encouraged at training sessions.
- Two executives were nominated by each group. Executives were issued a financial card⁷ and represent the individuals within the groups and their loans.

2) FTB embarks upon a group approval process

- Information required includes the financial cards of executive members, identification, and fingerprints of members.
- A credit-worthiness assessment of each group based on the residential location, occupations, earnings, etc of their members.

3) If a group is approved, no further assessment at the individual level is required when an individual requests a loan. All group members receive the same loan terms.

Service & logistics

Initially, all logistics (product deliveries, technicians, trainings etc) were coordinated from the head office in Kampala (180 km from Lwengo town) and the closest local VP shop in the neighbouring Sembabule District.

VP coordinates its local sales and services from its Village Power Centres (VPCs). VPCs serve as a place for customers to learn about and purchase VP products, connect with the brand, and access after sales service. There is at least one manager, one dedicated sales person, and one technician based at each VPC. The manager leads the sales efforts and coordinates the installations and maintenance visits to customers’ homes in the district. The manager and sales person may travel within the district to do sales events. The technician travels throughout the district doing installations and after sales service. Customers may contact the VPC directly for after sales service but they are also supported by a centralised Village Power helpline. Some stock is held in the VPC.

In June 2015, VP opened the Lwengo VPC in Mbirizi to coordinate sales and logistics for “Light Lwengo”.

Reaching the customers

Many potential customers are not aware of solar and the benefits that a SHS can offer them. They think that solar is unaffordable, or they are wary of solar products. Therefore, a significant effort is required involving several actors to “mobilise” customers towards solar: to inform them about the benefits and quality of SHSs, their functionality, and the financing options available, and to introduce them to the VP brand.

Local authorities and politicians (project partner, the Lwengo District Local Government) provide introductions to village leadership who

⁷ A financial card is required in Uganda in order to apply for loans from a regulated financial institution.

“IN A MARKET TAINTED BY POOR QUALITY UNSUPPORTED SYSTEMS, PARTNERSHIPS WITH TRUSTED LOCAL ORGANISATIONS OFFER CREDIBILITY, FOSTER TRUST, AND OFFER ACCESS TO PARTNERS’ CONSTITUENTS.”

⁵ Over the period of time where full upfront payment was an option.

⁶ Uganda Cooperative Savings and Credit Union Ltd (UCSCU) <http://www.ucscu.co.ug/data/smenu/36>

advocate for VP solar, help to coordinate visits to local villages, and drive attendance at “training/ sensitisation” sessions. Where they are engaged, the local political leadership can serve as a face of the project.

SACCOs provide access to members and work with FI partners to get approval for loans. SACCO leadership help encourage and collect regular payments.

VP coordinates sales efforts, delivers “trainings/sensitisations” at a village level to the Lwengo population to educate them about solar products and their accessibility, ensures product delivery, and performs installations. VP also launched an extensive training program with a specialist training organisation. This organisation reported that training sessions were held in 465 villages and 400 borrowing groups were formed.

Financial institution partners provide financing to customers, participate in village “trainings/sensitisations” to explain financing, and manage the collection of loan payments.

2. RESULTS AND IMPACTS

As of December 31st 2015, VP had installed 1,999 SHSs under the “Light Lwengo” project impacting nearly 11,000 people. Out of these 1,999 SHSs, the purchase of 1,241 systems was facilitated by a loan

“CUSTOMERS CAN EXPERIENCE AN INCREASE IN HOUSEHOLD DISPOSABLE INCOME, AS SOON AS THEY PURCHASE A SOLAR HOME SYSTEM, DUE TO DECREASED REGULAR ENERGY COSTS.”

provided by a VP FI partner. VP customers who have secured a SHS through “Light Lwengo” to date are experiencing significant benefits from transitioning from traditional lighting and power sources (e.g., kerosene) to solar.

INCREASED DISPOSABLE INCOME

Customers can experience an increase in household disposable income as soon as they purchase a SHS due to decreased regular energy costs (and travel costs associated with purchasing fuels). Furthermore, they are insulated from increasing costs of fossil fuels due to currency fluctuations. After the system is paid off, regular

A “LIGHT LWENGO” CUSTOMERS’ PATH TO SHS OWNERSHIP

1. A villager in Lwengo hears his local political leader talking about a VP solar training session that will happen in his village next week. He is interested so makes sure that he attends the training session.
2. At the conclusion of the session, he approaches one of the presenters who is the local VP sales manager to ask some questions and say that he wants to buy a system.
3. He is a member of his village SACCO and he starts to save around 8,000 UGX every week to prove his creditworthiness. Every week he gives some money to his SACCO leader and after 12 weeks he saves 100,000 UGX, the full 20% down payment.
4. Once he has saved full down payment, the FI partner informs the villager that he has been approved for a loan for the balance of a solar home system, triggers the disbursement and installation of a SHS.
5. The FI partner invites the villager to a second training which is designed to motivate customers to keep up their regular savings and payments against their loans and to seek feedback on system use and sales process. (The FI considers this an important element of managing customer payments).
6. Every week he pays his instalments to his SACCO leader.
7. After (on average) 9 months he has paid off his system and no longer has any weekly instalments.

“LIGHT LWENGO” VP CUSTOMER SNAPSHOT⁸

- Approximately 60% of customers are male
- The average age is 43 (ranging from 22 to 72)
- ~12% of customers report a monthly income of less than 199,000 UGX (USD 58)⁹;
 - 35% between 200,000 and 499,000 (USD 58.01 and USD 145);
 - 40% between 500,000 and 999,000 (USD 145.01 and USD 290);
 - and 15% between 1,000,000 and 2,000,000 (USD 290.01 and USD 580)
- 70% of VP customers are farmers
- Prior to switching to solar, VP customers report a median monthly spend on lighting of UGX 65,000
- VP customers’ sources of lighting prior to switching to solar include kerosene (~50%), paraffin (~40%), batteries (~10%), and candles (~10%)

⁸ “Light Lwengo” customer interviews, December 2014 - January 2015. N=99.

⁹ Using an exchange rate of USD 0.00029 per UGX

energy costs disappear as customers generate their own energy (energy costs usually constitute between 10% and 25% of the average monthly household income (Lighting Africa, 2010)).

Of course, the choice of what customers do with this extra disposable income is theirs. They may choose to spend more on services such as additional lighting or consumables. However, over time, customers may use this extra disposable income to make significant investments in their family's well being such as sending an additional child to school or making investments in their home or business. In a sample of "Light Lwengo" customers¹⁰, 51% reported saving the savings realised, 27% spent the savings on their childrens' education, 20% reported investing in home improvements, and 1% bought electrical devices. Approximately 30% of this sample group reported that they still used some traditional fuels (kerosene and batteries) after installing solar. In over 80% of these cases, these fuels were used for lighting in latrines.

POTENTIAL TO SUPPLEMENT INCOME FROM NEW REVENUE STREAMS

"Solar became an income, because it reduced the money that was spoilt on buying kerosene... For example we are spending about [UGX] 20,000 per month but now it brings in money, because we can charge phones for our friends who don't have power."

- Village Power customer, Lwengo District




Over 6% of "Light Lwengo" customers either engage in income generating activities opportunistically after purchasing their SHS or factoring such activities into their calculations for paying off a system when deciding to buy a system. However, in other districts up to 20% of VP customers use their SHS to generate some income. With support and encouragement this number could be higher. VP sees the opportunity to provide basic business education and support to customers interested in using their SHS to generate income and therefore to increase the value of the systems to the customers.

¹⁰ "Light Lwengo" customer interviews, December 2014 - January 2015. N=99.

"AS COMPANIES WILL DELIVER THE ULTIMATE IMPACT, COMPANIES NEED TO BE INVOLVED IN THE DEVELOPMENT OF SUBSIDY SCHEMES AND IMPLEMENTATION PROCESSES FROM THE START!"

Examples of such activities and supplemental income are contained in Table 2.

Table 2. Snapshot of potential revenue generation opportunities¹¹

MOBILE PHONE CHARGING	
	<p>Potential income: approx. UGX 500 per charge</p> <p>Investment needed: None (mobile phone charger suited to many models is included in system's purchase price)</p>
HAIRDRESSING	
	<p>Potential income: approx. UGX 1,000 per cut</p> <p>Investment needed: DC cutters: approx. UGX 50,000 AC cutters: approx. UGX 100,000 (larger SHS required to support cutters)</p>
CHICKEN RAISING (chicks need light throughout night)	
	<p>Potential income: approx. UGX 540,000 per batch (50 chicks)/ 6 weeks (up to UGX 4,500,000 per year)</p> <p>Investment needed: UGX 75,000 per batch - chicks & feed (UGX 650,000 per year)</p>

Source: Village Power

ESTABLISHING A CREDIT HISTORY AND BUILDING FINANCIAL LITERACY

For the majority (~65%) of "Light Lwengo" customers, the loan for their SHS is their first foray into the world of commercial borrowing and financial services¹². Customers have started to build a credit record that they can leverage for further loans.

A number of the borrowing groups established by VP for the "Light Lwengo" project are now being used by other companies such as agricultural providers and construction materials companies to sell seeds, other agricultural goods, water tanks, and corrugated iron roof sheeting.

INCREASED PRODUCTIVE HOURS PER DAY

The children of VP customers can now study in the evenings, without risking their eyesight due to dim, flickering light, and without breathing dangerous fumes. Increased hours available to study is also a selling point for parents as this serves to help level the academic playing field for off-grid children. All Ugandan children sit an exam at the end of primary school that determines their next level of education.

¹¹ Village Power field research and customer interviews.

¹² Percent of customers who received a financial card or opened a bank account for the first time.

VP customers can start saving on energy costs in the year they purchase an SHS and benefit from zero regular energy costs after system is paid off

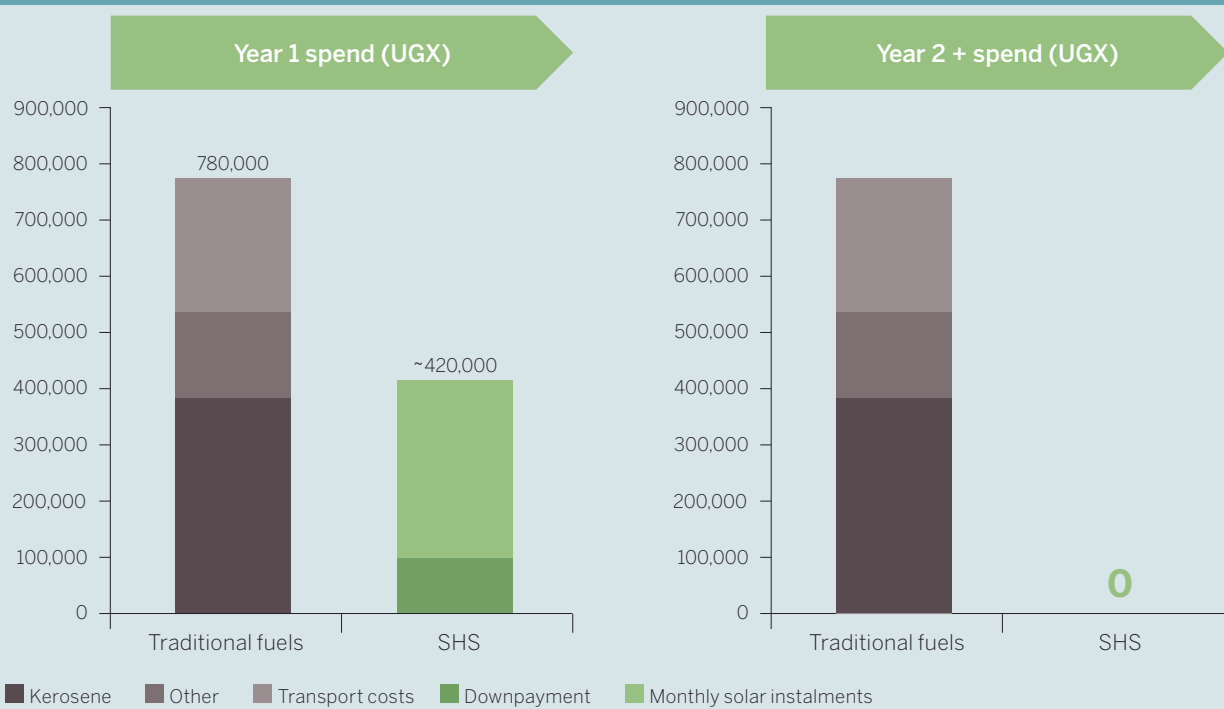


Figure 2

Monthly instalments can be less than average monthly spend on traditional fuels

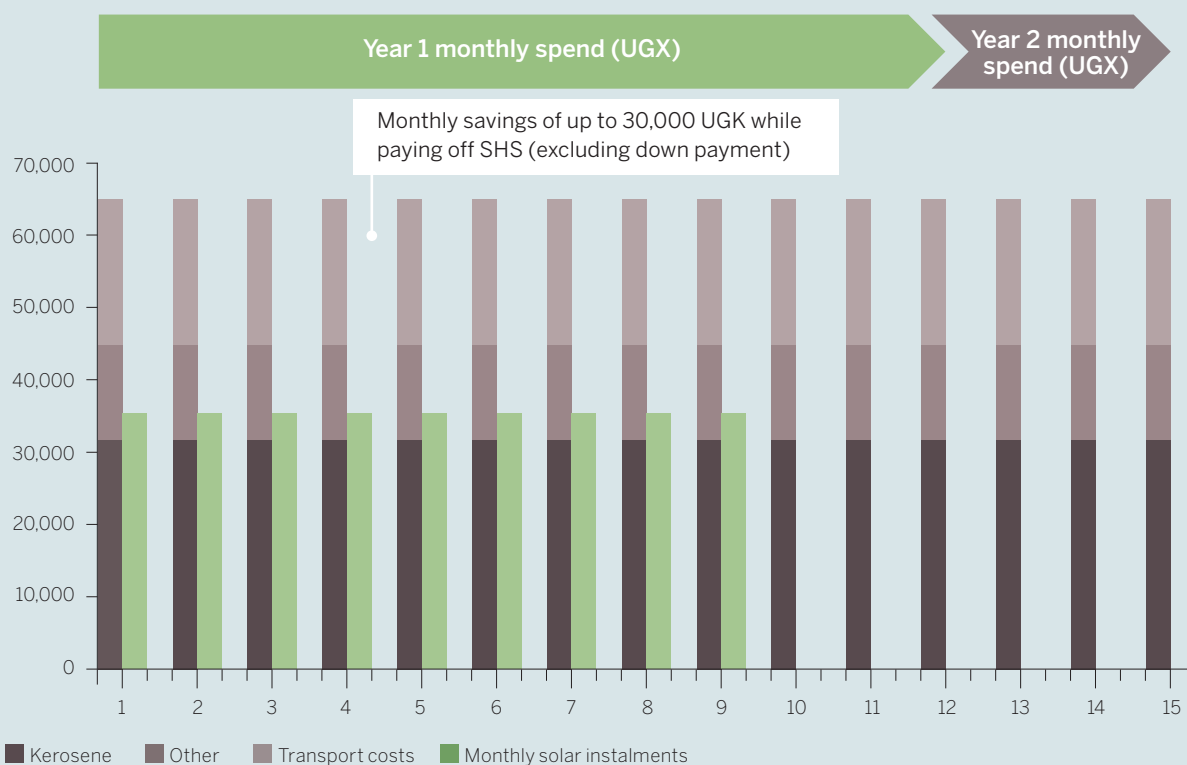


Figure 3

Off-grid children have been competing against on-grid children who have had more hours of light available to them to study on a daily basis¹³. 80% of VP “Light Lwengo” customers report that their children spend more time studying after the installation of their SHS, on average an additional 11 hours per week. Of these, ~80% report “improved grades” as a result of extra study hours¹⁴.

“Students who study under solar lights do the same national exams with those who use candles or those with no access to any lights... and recall their performance is a crucial point towards attaining jobs...”
George Mutabaazi, Lwengo District Governor, as he addressed soccer fans and players at Kajjalubanda play ground (October 21, 2015)

IMPROVED HEALTH

Health impacts of substituting solar for traditional fuels go beyond the avoidance of smoke and toxic fumes. Fearing house fires, customers report not using their mosquito nets near the flames of kerosene lanterns. After switching to solar, customers start using their mosquito nets decreasing the chances of contracting malaria.

“When they gave us mosquito nets we were scared if the small kerosene lamps won’t burn our children. So we first kept them. But when we got solar, in all homes, all beds, you find mosquito nets”
Namatovu Gerald Majera, Village Power customer, Lwengo District

3. OBSTACLES

SUBSIDY AS DESIGNED DOES NOT DEVELOP THE MARKET EFFICIENTLY OR ENCOURAGE OPTIMAL PRODUCTS

The subsidy was designed to be a fixed amount over the duration of the project, artificially depressing market prices in the long-term even where the market could bear an increased cost. These depressed prices hurt market development by limiting the attractiveness of the market to companies.

The REA subsidy program was based solely on the size of the panel, not on complete system size or performance. This created an incentive for companies to game the program by focusing on maximizing panel size rather than optimizing total system performance.

THE PROPER FUNCTION OF THE SCHEME RELIES ON THE EFFICACY OF THE ADMINISTRATIVE BODY

Subsidies can foster a liquidity challenge for companies if outstanding subsidies are not paid

in a timely and predictable manner. From very early on, the REA program administration has been caught up in internal audits. This has delayed the installation inspection process and therefore subsidy payments to participating companies, ultimately leading to an interruption of project execution.

SPEED OF FINANCING PARTNER DETERMINES ROLLOUT SPEED

Some financial partners are neither focused on nor equipped to deal with base-of-pyramid customers whose applications for a loan for their SHS may be the first interaction they have had with a FI. Loan approval processes are relatively complex and take a long time. For example, the process requires fingerprint scans of customers. The scans may need to be done in a FI branch requiring the customer to travel, potentially long distances, to a branch. The branch fingerprint scanner was sometimes not available so a long expensive trip to the bank branch might turn out to be fruitless.

Additionally, the use of an external financing partner increases the distance between VP and its customers. It adds to the number of touch points required with the customer (and therefore time) to finalise a sale and requires an efficient interface between the company and the financing partner to share a view on the status of all loan applications and active loans.

LACK OF KNOWLEDGE OF BENEFITS OF SOLAR AND GENERAL MISTRUST OF SOLAR IN MARKET

Whereas there is a general awareness of solar thanks to panels appearing on roofs and an increasing number of stores offering solar components in towns, there is limited knowledge of the benefits and significant long-term cost savings offered by solar. Trainings aimed to directly provide this knowledge.

Additionally, there is a history of poor quality, unsupported product in the market. As a result, some customers mistrust solar, especially considering the size of investment required for a SHS.

CYCLICAL CONFLICT OF INTERESTS WITH POLITICAL LEADERSHIP

A strength of the “Light Lwengo” project was the strong support of the political leadership in the Lwengo District. However, around campaign times some political leaders became distracted by the politics of the elections, and the pressures of re-election resulting in a drop off of support for the project.

Additionally, such a project may become tied to a political leader associated with the project and hence become politicised. As a result, the opposition may try to undermine the project despite its merits or incite a boycott of the project by supporters. Some customers are hesitant to buy a SHS not wanting to support a project associated with a specific politician that they may oppose.

As a mitigating measure, VP ensures that such contracts are made with local district governments and not with the individuals associated with them. VP also does not make any political endorsements.

4. LESSONS LEARNED

The “Light Lwengo” project has afforded a number of clear learnings both on how to establish such SHS market development initiatives and on refining the VP approach to scaling the business.

¹³ Village Power Uganda Head of Business Development and Sales.

¹⁴ “Light Lwengo” customer interviews, December 2014 - January 2015. N=99.

ESTABLISHMENT AND OPERATION OF SHS MARKET DEVELOPMENT SCHEMES

Government agencies, funders, and the private sector should work together to set up such programs in order to ensure that the perspectives of the businesses are heard and that the processes are pragmatic from a business perspective. This includes input into subsidy design, installation verification process (including information sharing to facilitate the process), and disbursement process.

Furthermore, businesses should have an open communication channel with the ultimate sponsor in order to facilitate feedback on the subsidy program and identify and address any problems early on. Program execution should also be spot checked by the ultimate project sponsor (in this case, the World Bank's ERT II program) in order to ensure effective scaling.

DESIGN OF SUBSIDIES

Subsidies should focus on offsetting costs to scale. To develop a sustainable market, a subsidy should stimulate demand initially by increasing the number of people who can afford to purchase the product and accelerating economies of scale. However, the subsidy should taper over time to the ultimate cost of a product once economies of scale have been achieved so as to not distort the market.

It would be more productive to focus subsidies on overall performance of systems, such as available power output (Watt Hours) and not on one element of the system (e.g., panel sizing). This would not encourage the gaming of subsidies by oversizing panels compared to the overall capacity of the systems.

The subsidy applied to VP in the "Light Lwengo" project was to a single product, the K-2 (see Section 1). Just offering one standard kit does not cater to the full range of customer circumstances and demands (due to varying positions on the energy ladder). VP is now offering its full range on an unsubsidised basis and awaits more insight as to the impact of the subsidy on sales of the broader range.

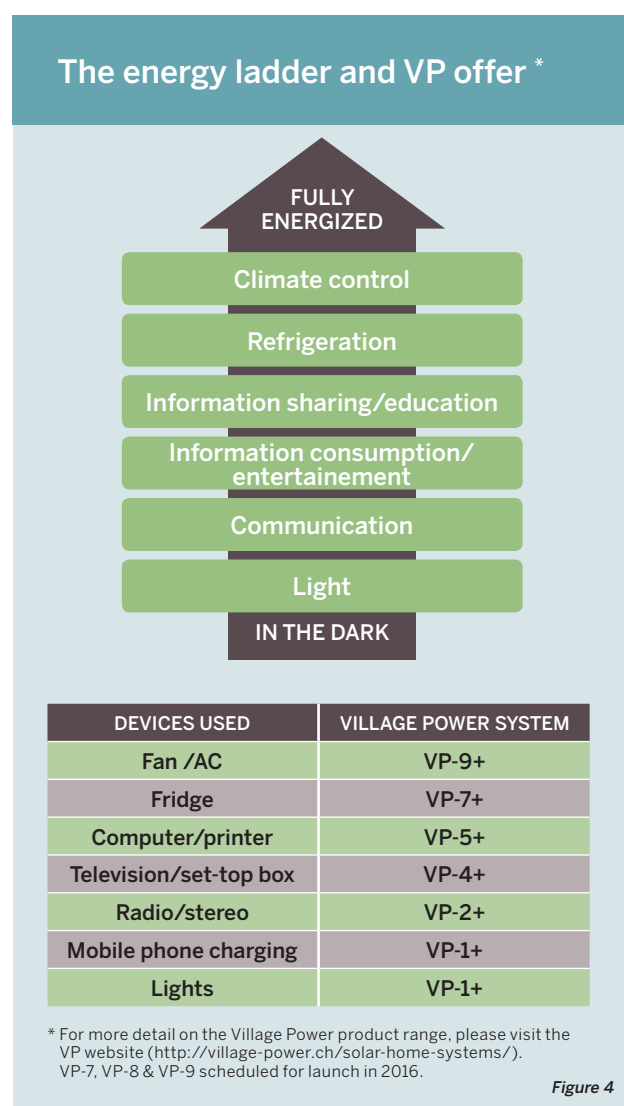
CONSUMER FINANCING MUST BE READILY AVAILABLE

As stated, rollout speed is determined by the speed of the financing partner. In VP's experience, this is not fast enough to facilitate meaningful impact on electrification rates. Therefore, recognising the need to move to directly provide financing to customers, VP has developed its own Pay-As-You-Go (PAYG)/Mobile Money (MM) platform. VP started to offer PAYG on sales of un-subsidised models (outside of the "Light Lwengo" project) to interested customers in Lwengo in August 2015.

In order to qualify as a VP MM customer, a customer must be able to pay a down payment of 20% of the purchase price of their system upfront. Customers have 12 months to pay back the balance of their system cost, with interest, but are encouraged to pay back the loan as soon as they can. If they pay off their system in less than 12 months, they qualify for a discount of the interest saved.

Operating a VP MM platform has the following advantages:

- **Efficient process:** VP already has various contacts with the customer. These encounters can be used to gather all necessary data so no additional visits by or to a FI are necessary.
- **Roll-out speed:** VP does not depend on the account opening and loan approval processes of the FI, which can be quite slow.



- **The SHSs serve as collateral for the outstanding payment amounts:** VP has a branch and technicians close to customers and can much more easily retrieve a SHS associated with a defaulted loan than can a FI. Additionally, since VP has the ability to refurbish and resell the retrieved systems, the collateral has a much higher value to VP than to a potential financing partner.
- **Transparency:** Since the collection of the outstanding payments is conducted through MM, this process can be highly automated and made very transparent both to VP and to potential refinancers of the outstanding payment portfolio.
- **The ability to switch off the SHS remotely** in case of overdue payments from the client increases the incentive for the client to resume payments and to not fall behind the payment schedule, further reducing default rates.

VP was already dealing with the majority of its customers individually during the sales process through representatives at training and sales events and at the VPC. The immediate impact on District organizational structure is limited as the sales, installation, and after sales service processes remain largely unchanged. Centrally, VP has developed and is growing a dedicated customer service team in order to manage and follow up on customer payments. VP is also tackling the challenge of re-financing growing receivables.

Customers have expressed that they prefer dealing directly with VP. They feel that VP understands their needs better and does not apply punitive penalties for short periods of late payments as they believe banks, via SACCOs, will do.

To the end of December 2015, there were 51 customers on PAYG plans in Lwengo District.

COMPANY FINANCING DEMANDS ARE COMPLEX AND EXPAND BASED ON THE NEED TO OFFER CONSUMER FINANCING

The expansion of a PAYG offer leads to significant re-financing requirements to cover the outstanding loan portfolio. Ideally, this re-financing should be in local currency in order to remove the currency risk. VP is therefore now seeking the development of an appropriate refinancing facility.

The outstanding instalments of the PAYG clients have to be pre-financed (a portfolio of many micro-loans of around 100-1,000 USD). There is potential for debt investors or a working capital facility.

There are a number of attractive features of the VP MM loan portfolio for investors that are interested in new types of opportunities:

- Outstanding instalments are managed through the VP MM dashboard that provides full access to and transparency of the loan portfolio to the financing provider.
- The loan portfolio does not contain clustered risks.
- The SHSs serve as collateral and VP can offer a buy-back guarantee at pre-defined prices.

However, local FIs are often not willing to lend to solar companies. Even if funding is available, the interest rates are far too high and the credit assessment process is long and inflexible. Additionally, if loans are not in local currency, the solar companies need to absorb the currency risk.

There is an opportunity for governments and development institutions to create significant impact in increasing solar company access to financing, critically in local currency, and further develop the local "solar ecosystem" through two options:

1. Lend directly to approved solar companies by pre-approving select solar companies operating

in a market, issuing repayable loans to approved solar companies, assessing performance against agreed targets, and then extending or terminating the credit facility based on progress to targets.

- #### **2. Providing first loss guarantees** (in USD or UGX) to local Ugandan FIs combined with guidelines on how, and to whom, FIs can lend under the first loss scheme. This would be done by pre-approving select local FIs and defining the rules of the game, selecting local FIs lending to solar companies, assessing performance against agreed targets, and then extending or terminating the credit facility based on progress to targets. Various financiers and FIs have expressed interest in such first loss guarantees. Solar PAYG default rates are not rigorously quantified: anecdotally they range from 2-4%. A 10% first loss guarantee would address the uncertainty surrounding default rates until sufficient data is available to accurately quantify the industry default rate. A first loss guarantee also offsets the risk associated with a FI needing to call in, and liquidate, systems as collateral on a failed solar company. Indeed AT Kearney and GOGLA also support the innovation of a revolving working capital fund with a first-loss tranche to encourage debt investment in the sector (AT Kearney/GOGLA, 2014b).

BUILD CONFIDENCE IN SOLAR PRODUCTS AND COMPANIES

To boost consumers' confidence in solar, and address the poor perception of solar due to early experience with poor quality unsupported products, there is a need for independent local certification of products by a familiar, trusted entity. This could be a local standards agency, such as the Uganda National Bureau of Standards, supplementing the work of IFC's Lighting Global standards and certification program¹⁵.

Co-branding with a trusted local organisation has had a positive impact on confidence in VP products. VP has another agreement for the deployment of SHS in the Buganda Kingdom (the largest traditional Kingdom in Uganda). There, VP features the seal of the Buganda Kingdom on the products. In localities where this branding is featured on the systems and where the local Buganda Kingdom leadership are engaged with promoting solar, this provides surety to customers on product quality. It facilitates the sales pitches and drives a marked uptick in sales.

As PAYG grows and requires more credit, trust in companies and the market becomes increasingly important. Product quality is a key success factor in the success of a solar PAYG company and indeed the sector. Good product quality ensures minimal post-sales customer service costs and is seen as necessary by financiers in order to keep a business as a going concern. It also lays the foundation with customers for a trusted brand in the market. Each stakeholder (from financiers through to customers) is not able to independently certify products therefore centralized certification would be useful for the sector.

As such, both the public and private sectors, including potential financiers, are interested in ensuring quality through product standards and company certification to foster trust in the sector and therefore growth. The Uganda Energy Credit Capitalisation Company (UECCC) is, at present, looking to certify solar companies so that those companies can benefit from certain solar funds.

¹⁵ <https://www.lightingglobal.org/products/?view=grid>

ESTABLISH A BRAND THROUGH LOCAL PRESENCE

VP has made the decision to control the brand and has therefore invested in developing a direct local sales and service network. Developing and maintaining a local presence is crucial to convince customers of the legitimacy of the solar offer, the company, and access to after-sales service that will ensure that their investment performs as expected. This presence is built upon the VPCs.

STRONG POLITICAL LEADERSHIP AND SUPPORT REQUIRED

People living in rural areas usually do not have access to much information about new products and services on offer. They do not have the opportunity to compare prices, assess the offer, or

determine the reliability of the product or service. They are therefore very reliant on word of mouth and that usually starts with local leaders. These are individuals from different sectors that have the respect and trust of the community. If they buy into a product, they lend credibility to the offer and can attest to its benefits.

In the “Light Lwengo” project, these leaders were the political leadership who were bought into the project from the outset. Their advocacy for solar was important to initiate and sustain sales.

CONCLUSION

The “Light Lwengo” project has been a positive experience of working closely with local government to gain access to and develop a local market. It has also been a tremendous learning experience.

Subsidy schemes have the potential to develop sustainable SHS markets. Where there is ability to pay in the market, subsidies should focus on facilitating and accelerating companies’ progress to achieving economies of scale and therefore taper off over time. SHS subsidies should also incentivise efficient overall system performance matched to customers’ needs. **Since it is companies that will deliver the ultimate impact, such companies need to be involved in the development of subsidy schemes and the implementation processes from the outset.**

There is an appetite in Lwengo for VP’s unsubsidised (larger) models indicating a level of maturity in the market. Since launching the unsubsidised models in Lwengo in August, the monthly sales of unsubsidised models have been growing as a portion of total units sold reaching 56% in December. In 2016, VP is looking to scale Lwengo sales significantly and is targeting the majority of sales to come from unsubsidised models. VP will also focus on making sales via Village Power Mobile Money to expedite the sales process and scale rapidly. Associated with expanding the PAYG business and the closer relationships with customers afforded by this channel, VP will also be refining and expanding its data collection to better understand impact and target business decisions.

As companies such as Village Power move to PAYG in order to grow and better serve their customers, there is an increasing need to help develop financing products tailored to solar companies in local currency to ensure companies’ ability to grow and satisfy the increased financing demands.

Other key success factors that VP sees for expansion are as follows:

Build the on-the-ground sales organisation based in the Lwengo Village Power Centre in order to be close to customers not only in the sales process but also in offering and coordinating after sales service. This proximity and availability is one way in which VP will be building customers’ confidence in VP products and the brand. After many customers’ initial experience of poor quality unsupported solar goods in the market, significant and ongoing efforts are required to build confidence in solar and in a company and brand in the market.

Maintain strong but unbiased relationships with the local political leadership. This will be especially important this year considering the 2016 elections held in February.

Sales of unsubsidised models as percentage of total units sold

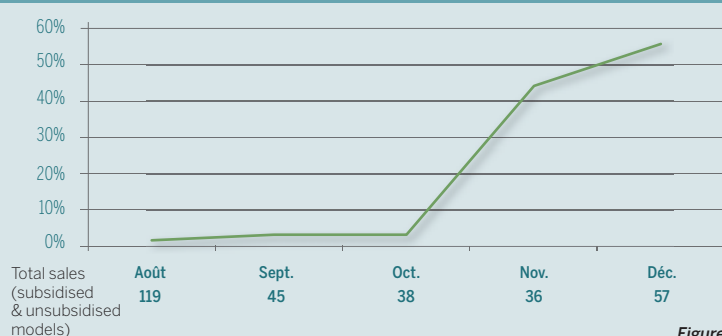


Figure 5

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