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DE-RISKING PAY-AS-YOU-GO SOLAR HOME SYSTEMS IN UGANDA REFUGEE SETTLEMENTS PROJECT

Final Report

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CONTRACT INFORMATION

This program is made possible by the generous support of the American people through the United States Agency for International Development under the terms of its requisition number REQ-AFR-18-000035. Green Powered Technology is implementing De-Risking Pay-As-You-Go Solar Home Systems in Uganda Refugee Settlements Project under Task Order 720-674-19-F-00001 of Power Africa Indefinite Delivery, Indefinite Quantity Contract 720-674-18-D-00008.

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EXECUTIVE SUMMARY

This final report profiles the progress on the United States Agency for International Development (USAID)-funded project, “De-Risking Pay-As-You-Go Solar Home Systems in Uganda Refugee Settlements” (Task Order No. 720-674-19-F-00001). The project aimed to accelerate off-grid investment and energy access by incentivizing private-sector Pay-As-You-Go (PAYGO) Solar Home System (SHS) companies to enter Kiryandongo and Rwamwanja refugee settlements and host communities in Uganda. The innovative financing model of PAYGO promotes inclusion and facilitates adoption of digital tools by enabling customers to make mobile money-based payments that better match the realities of their financial circumstances. The objective of this project was to encourage private companies to view refugee communities as a viable market, with lessons and experiences gained through this project providing a catalyst for future energy access developments within refugee settlement economies. Initiated October 15, 2018, the 22-month project was implemented by Green Powered Technology in partnership with Energy 4 Impact. This project showcases Power Africa’s key contributions to the Smart Communities Coalition (SCC), an effort to improve the delivery of essential services to refugees and host communities through enhanced coordination between public and private entities and the strategic introduction of technology.

UGANDA REFUGEE CONTEXT

Uganda hosts close to 1.4 million refugees, more than any other African country. For more than a decade, the Government of Uganda has pursued a policy framework that focuses on self-reliance, with greater coordination of humanitarian and development aid. Today, Uganda’s refugee policy is seen as a model, empowering refugees as economic actors in charge of their own destinies. However, the need for basic services, such as access to electricity, remains. Many settlements are not connected to the national grid or mini-grids, and home lighting is sparse. Through the use of SHS, refugees can expand economic opportunities, increase incomes, reduce health impacts from kerosene-based lighting, and enhance education. This USAID project represents an innovative and timely approach to bridging the nexus among economic development, energy access, and humanitarian assistance, harnessing private-sector engagement to meet development objectives.

IMPLEMENTATION APPROACH

Historically, knowledge, financial, product, and risk barriers have discouraged private-sector SHS companies from serving refugee markets. The challenge for the grants program was to design a vehicle to de-risk private-sector investment in this emerging market, and serve some of the world’s most vulnerable populations. Importantly, the grants program was designed to avoid market distortions, such as through the free distribution of SHS. Instead, grants were required to support such market expansion activities as product customization for refugee applications, recruitment and training of local sales agents, establishing operations near refugee settlements, and marketing. The scope of this project included the design, implementation, management, and monitoring of a milestone-based grants program. The project was broadly divided into two major tasks: a grants program and disseminating lessons learned.

First, the project team held wide-ranging stakeholder consultations to understand their concerns and gain their advice. Second, guided by realities on the ground, the project team designed the grant program, which included documenting its governance, structure, and operation. Third, the team issued a call for

proposals, submitted the applications to rigorous technical review, and selected the three winning SHS proposals. The team monitored and provided support to the grantees as they initiated the 12-month implementation of their grants. Starting in June 2019, grantees established infrastructure and operations in the refugee settlements and host communities, which included physical sales centers; marketing, recruitment, and training programs; and customer service operations.

RESULTS

PROJECT

The grants have successfully increased private-sector PAYGO SHS company participation in the refugee settlements and host communities. The three grantees, BrightLife, Fenix International, and SolarNow, are now actively operating and selling SHS in the refugee settlements of Kiryandongo and Rwamwanja and the adjacent host communities. Prior to the project, SHS companies were interested in refugee settlements, but the risks and unknown conditions presented too high of a barrier to market entry. For example, questions about access to settlements, local energy demand, mobile money familiarity, product affordability, and local workforce availability dissuaded corporate investment. The grants significantly de-risked these barriers, enabling the grantees to gain access to operate in the settlements, set up new operations, learn the product preferences of the refugee market, adapt marketing materials to local languages, and revise staff recruitment and retention practices of a new labor market.

4,137 SHS sold
285 jobs created
3 PAYGO SHS companies
operating in 2 refugee
settlements
19 key lessons learned identified

All three grantees plan to continue operations in the area, a decision strongly influenced by observed repayment rates. Two of the grantees have witnessed acceptable repayment rates thus far but will require more time – likely another year – before they have collected enough data and have observed the long-term trends required to make a definitive assessment. The third grantee will scale back operations to cash-only sales. That each will continue to provide sales to these markets points to the fundamental success of the program.

A countrywide lockdown for COVID-19 halted operations for the last two months of the grant period; nonetheless, grantees made commendable progress toward their targets. They sold a combined 4,137 SHS toward the project target of 10,000 SHS units. Refugees accounted for 22% of sales and women accounted for 31%. The grantees far exceeded the employment target of 15 new jobs, creating 285 jobs, consisting of salaried staff and commission-based sales agents.

KEY LESSONS LEARNED

This USAID project was about more than providing support and de-risking the market entry challenges faced by the three grantees. The project had broader enabling responsibilities, such as ensuring that future PAYGO SHS companies interested in entering refugee markets benefit from these experiences, and that other stakeholders interested in promoting greater involvement of PAYGO companies within these markets understand the challenges and how to address them. To this end, it is important to document and share the experiences of the grantees with regard to opportunities, challenges, adjustments, and lessons learned; explore coping strategies and adjustments; and develop a best practices framework. The

project documented the following 19 key lessons learned in the areas of ease of doing business, market profile, and grant program design:

Ease of doing business

Settlement entry

- Experience: Initial written permission from Office of the Prime Minister was required but entry after that was unhampered
- Key lesson: Ensure permission is secured early to avoid delays

Establishing points of sale

- Experience: Suitable infrastructure and services available in host community but lacking in refugee settlements
- Key lesson: Recommend satellite presence in settlements for customer accessibility

Access to mobile money and mobile phones

- Experience: Most households have a mobile phone and are familiar with mobile money
- Key lesson: Not possible to on-board those without mobile phones. Potential customers are quick to convert to using mobile money

Telecoms network

- Experience: General network coverage is good, but significant gaps remain
- Key lesson: Network gaps impact repayment (most common customer complaint) and after-sales services

Recruiting/retaining staff

- Experience: Refugee settlements were challenging; host communities presented standard conditions
- Key lesson: Companies must foster adjustments to commission-based pay models

Partnerships

- Experience: Forging local partnerships can compensate for lack of local knowledge
- Key lesson: Partner options available but forging relationships requires time. Start process early.

Market profile

The presence of a commercial market

- Experience: Potential for a sustainable market in both communities
- Key lesson: Refugees rely on humanitarian stipends and lack experience with long-term credit

Host Communities vs. refugee markets

- Experience: High level of integration between the markets, both offer commercial potential
- Key lesson: Refugee markets slightly inexperienced with long-term credit purchases

Distinct customer profiles

- Experience: Smaller PAYGO systems appeal to a mixed market; larger systems to more defined market
- Key lesson: Larger, more tailored systems appeal to a more defined income segment

Credit checks and know-your-customer philosophy

- Experience: Refugees' lack of national ID documents stymied standard credit check process
- Key lesson: Grantees modified customer databases to accommodate refugee IDs

Credit performance and repayment levels

- Experience: Two companies' repayment rates were consistent with general portfolio
- Key lesson: Repayment was impacted by poor payment infrastructure (e.g., mobile money, telecoms)

Productive use of energy

- Experience: Larger systems linked to productive activities (e.g., refrigeration, barbers, cinemas)
- Key lesson: Smaller systems enhance communications for agriculture information (e.g. via phones, radios)

Marketing strategies

- Experience: All grantees made only slight adjustments to market strategies in refugee markets
- Key lesson: Greater reliance on radio, customer ambassadors, and constant education

Adjusting business strategies

- Experience: Minor adjustments around marketing mediums, incentive structures, local partnerships
- Key lesson: A level of agility is expected from PAYGO companies entering new markets

Grant program design

Motivation of grantees for participation

- Experience: High grantee interest but wary of too many unknowns
- Key lesson: Grant design must directly address expressed uncertainties

Grant's effectiveness in de-risking the opportunity

- Experience: Effective in resolving the tensions between servicing Base of the Pyramid (BoP) markets and being sustainable

- Key lesson: Addressed the legal, informational, and cost uncertainties of the market

The effective structuring of the grant

- Experience: The short implementation period was considered 'motivating'
- Key lesson: COVID-19 notwithstanding, short implementation period impacted ability to achieve targets

Any adjustments to the grant going forward?

- Experience: Grantees considered current design to be effective in achieving program objectives, although concerns about short implementation period noted.
- Key lesson: A grantee suggested a more 'results-based financing' approach for financial accountability while some suggested longer implementation periods.

Applicability to other situations

- Experience: Refugee settlements share broadly similar characteristics, suggesting universal applicability
- Key lesson: Factor in Uganda's modern 'open-door,' rights-based refugee policy

BROADCASTING THE EXPERIENCE

The project was keen to broadly share the key lessons learned so that future PAYGO SHS companies and the stakeholders who support them may benefit from, and build upon their experience. This report includes a lessons learned summary infographic (Annex A), which has been distributed to individuals and organizations. Green Powered Technology hosted a webinar on August 3, 2020, where technical experts elaborated upon the experience and addressed questions. In the interest of ensuring these materials remain readily available, the lessons learned leaflet and this final report are available on the Development Experience Clearinghouse website.

ACRONYMS

AVSI	Association of Volunteers in International Service
BL	BrightLife
BoP	Base of Pyramid
CfP	Call for proposals
COVID-19	Coronavirus Disease 2019
FI	Fenix International
FTE	Full Time Employee
FY	Fiscal year
GP	Grants program
GPTech	Green Powered Technology
ID	Identification Document
MEL	Monitoring, Evaluation, and Learning
NGO	Non-Governmental Organization
OPM	Office of the Prime Minister
PAR	Portfolio at Risk
PAYGO	Pay-As-You-Go
PAUESA	Power Africa Uganda Electricity Supply Accelerator
POS	Point of Sale
PSP	Private Sector Participation
RPC	Readypay Champions
SCC	Smart Communities Coalition
SHS	Solar Home Systems
SME	Small and Medium Enterprises
SN	SolarNow
TEC	Technical Evaluation Committee
TOCOR	Task Order Contracting Officer's Representative
UNCDF	United Nations Capital Development Fund
UNHCR	United Nations High Commissioner for Refugees
USADF	U.S. African Development Foundation
USAID	United States Agency for International Development

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Finally, GPTEch is particularly grateful for the support and effective technical direction by USAID's Contracting Officer's Representatives (CORs) on this project, Lovemore Seveni and Katrina Pielli.

INTRODUCTION

PROJECT OVERVIEW

This final report documents the objectives, process, outcomes and recommended best practices of the United States Agency for International Development (USAID)-funded task order, “De-Risking Pay-As-You-Go Solar Home Systems in Uganda Refugee Settlements.” The project aimed to accelerate off-grid investment and energy access by incentivizing private-sector Pay-As-You-Go (PAYGO) Solar Home System (SHS) companies to enter Kiryandongo and Rwamwanja refugee settlements and host communities in Uganda. The 22-month project was implemented by Green Powered Technology (GPTech) in partnership with Energy 4 Impact. The project involved the design, implementation, management, and monitoring of a milestone-based Grants Program. Design of the Grants Program was guided by realities on the ground, determined through wide-ranging stakeholder consultations.

This initiative showcases USAID's key contributions to the Smart Communities Coalition (SCC) as a co-chair. The SCC seeks to improve the delivery of essential services to refugees and host communities through enhanced coordination between public and private entities and the strategic introduction of technology, in accordance with three foundational pillars: energy access, digital tools, and connectivity. This project will encourage private companies to view refugee communities as a viable market, with lessons and experiences gained through this project as a catalyst for future energy access developments within refugee settlement economies.

Key project features:

- The Grants Program sought to further innovation and reduce the knowledge, product, financial, and risk barriers to serving refugee communities.
- Three grants were awarded, totaling up to \$465,000.
- Applications were solicited during a one-time grant application window of 20 working days.
- Awards were made to PAYGO SHS companies with at least 12 months of commercial operation experience in East Africa.
- Grant implementation did not exceed 12 months, although grantees are anticipated to continue operating in these areas beyond this period.
- Grant implementation did not distort market economies, such as through free distribution of SHSs.



In the Kiryandongo refugee settlement, Omar Ismael bought a SolarNow 500Wp system, allowing him to provide a phone charging service for dozens of phones. He reduced his energy expenditures nearly 70% by switching from a diesel genset to solar power.
Photo source: GPTech

- The project aimed to positively impact host communities, defined as communities within a 10-kilometer radius of designated refugee camps.
- Aggregate data and lessons learned will be collected and shared to further establish refugee settlements as viable target markets for PAYGO SHS companies.

PROBLEM CONTEXT

Uganda hosts more refugees than any other African country, where 80% live on less than USD \$1.25/day. For more than a decade, the Government of Uganda sought ways to address the diversity of the refugee population and their different needs and capacities and has established a policy framework that focuses on self-reliance, with greater coordination of humanitarian and development aid. Today, Uganda's refugee policies are often seen as a model, which takes a development rather than humanitarian approach to refugee support. Refugees are often viewed as economic actors in charge of their own destinies rather than as beneficiaries of humanitarian aid and are therefore afforded freedom of movement, land ownership, employment, access to business capital, and other benefits not often seen in other countries. These rights enable economic progress, which in turn can increase incomes and the ability to purchase SHS. However, within the camps, there continues to be a need for basic services, such as access to electricity, where many camps are not connected to the national grid or a micro-grid, and home lighting and electricity are sporadic.

This project represents an innovative and timely approach to bridging the nexus between economic development, energy access, and humanitarian assistance. It particularly reinforces the importance of private sector engagement in meeting the development objectives in the country. Private sector companies, such as Mastercard, Western Union, and others are starting to seek market entry points and the Government of Uganda continues to identify opportunities to “de-risk” potential investments, particularly renewable energy investments, within this refugee/host community environment. The combined effort to improve renewable energy investment incentives and further progressive refugee management policies provided the enabling environment to achieve its objectives and incentivize the SHS companies to invest and implement PAYGO SHS programs in the selected camps of Kiryandongo and Rwamwanja.



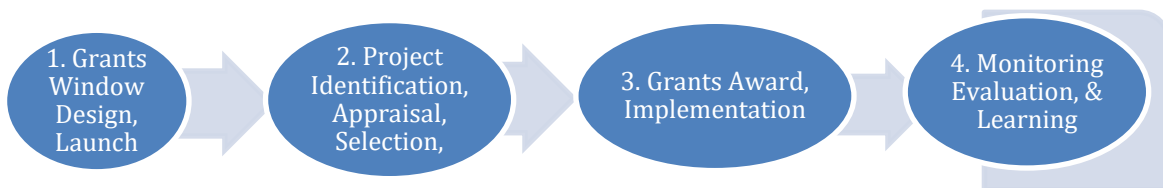
Amita Rose, a South Sudanese refugee in the Kiryandongo settlement, uses the BrightLife WOW 60 system, which offers three lights and mobile charging. She appreciates the ease of charging her phone at home and the opportunity for her children to study in the evening.

Photo source: GPTech

METHODOLOGY

The following section summarizes the methodology employed, consistent with project work plan. As illustrated in the figure below, the grants program was comprised of four key components, each with its own sets of activities, milestones, outcomes, and deliverables.

Figure 1 Grants Program Components



COMPONENT 1.1 GRANTS WINDOW DESIGN, LAUNCH

The Grants Window Design process was an important foundational process that ensured the design of the grant Call for Proposals (CfP) was strategically aligned with and informed by market prospects and the SHS companies' business interests. Key activities that contributed to this process are outlined below.

CONSULT RELEVANT STAKEHOLDERS GPTech contacted 18 stakeholders, as listed in Table 1 below, and held wide-ranging consultations to ensure realities on the ground directly informed the grants program design. The stakeholders included SHS companies whom the team queried on such topics as the enabling environment, their business model and products, target markets, and the areas within which they operate. The stakeholder outreach also included USAID and its affiliates, and covered topics about experience in Uganda, rural energy access, refugees, and host communities. For all stakeholder engagements, the team developed discussion guides to direct the conversations and promote consistency across the conversations; a fact sheet on the project was shared.

DEVELOP A GRANTS PROGRAM GOVERNANCE PROPOSAL The GPTech team prepared a Grants Program governance proposal, covering the structure and processes related to the management of the Grants Program and describing the key actors in the Grants Program and their roles and responsibilities relative to decision-making, management, and implementation of the Grants Program. Discussions regarding roles and responsibilities addressed: (1) who will make decisions on grant selections; (2) what engagements are required or allowed by the applicants; (3) post-award management, oversight, and award implementation; (4) reporting and disbursement of funds; (5) and issues such as intellectual property and confidentiality of information.

COMPLETE LITERATURE REVIEW The GPTech team finalized its review of relevant literature, which had begun at the beginning of the project. This review, which involved over 44 documents, included sector and stakeholder assessments to further inform the team's understanding of the program context. The review included references and documents provided by USAID and that the team identified and stakeholder interviews. The review identified key and strategic considerations for the design of the Grants Program to maximize participation, solicit quality applications, and lead to the achievement of program objectives.

Table 1 Individuals and organizations contacted

Ray Gorman – Power Africa Off-grid Project	David Jones – Power Africa Off-grid Project	Travis Kotecco – SCC
Richard Smith – PAUESA	Jit Bhattacharyya – Fenix International	Dickens Ibok Solantis
Waringa Matindi – Village Energy	Stefan Grundmann – BrightLife	Patrick Muriuki Greenlight Planet
Druni Jakani - Lacha Community Economic Development	Waddell Bobby Lutheran World Federation	Iveta Ouvry - Mercy Corps
John Paul Magezi Uganda Office of the Prime Minister	Jay Patel – Village Energy	Muhammed Lubowa – All in Trade
Ronald Schuurhuizen – SolarNow	Julius Magala – UNCDF	Ranya Sherif, Mohamed Abdel-Al, Gerald Peter Emoyo – UNHCR

PREPARE MARKET INFORMATION PACKAGE The GPTech team prepared an information packet of materials for potential applicants, which included the SCC market profile of the two refugee settlements, Kiryandongo and Rwamwanja; identified challenges and opportunities; and provided additional resources, such as other aid organizations operating in the energy space in Uganda, mobile money organizations, and energy organizations. This information helped potential applicants refine their business model to suit the unique refugee context.

DEVELOP INDICATIVE PROJECT OUTLINE The market information packet included an overview of the Grants Program, including the key requirements for applicants, additional contracting requirements, and answers to anticipated questions. The purpose of the information packet was to prepare applicants for the subsequent release of the CfP and corresponding application completion. It was also intended to guide SHS companies in developing fundable and sustainable projects that could achieve the Grants Program project objectives.

ESTABLISH EVALUATION CRITERIA The GPTech team developed a primary framework to assess applicants' eligibility and then a second framework to evaluate applications. As a first step in the evaluation process, the team screened the applications for eligibility against the following criteria:

1. Applicant proposes providing SHSs that can be paid through mobile phone-based PAYGO technology.
2. Applicant proposes to sell a product at market price without any direct customer subsidies.
3. SHSs being offered consist of multiple lights and a port for phone charging; systems can also include appliances but are not required.

4. SHSs being offered under the Grants Program comply with Lighting Global standards and have certification under the Lighting Global program, or the SHS applicant has started certification procedures for the proposed products.
5. Applicant has been operating on a commercial basis in East Africa for a minimum of 12 months.
6. Applicant or a key partner is fully registered to do business in Uganda.
7. A company can submit only one application.
8. Application targets the Kiryandongo and/or Rwamwanja refugee settlements and host communities.
9. Applicant has an annual turnover in the past two or three years equivalent to or greater than the award amount sought.

The criteria used in the evaluation of the applications covered four categories: sustainability, financial, performance, and technical, with respective total possible scores of 20 points, 25 points, 25 points, and 30 points.

If an application received a “fail” or an “unclear” for any one of these nine criteria, it was generally deemed ineligible.

PREPARE DRAFT CALL FOR PROPOSALS The GPTech team prepared and submitted the key document in the Grants Program package CfP to the Task Order Contracting Officer’s Representative (TOCOR) for approval. The CfP was accompanied by three documents: (1) a Grants Program application instructions and templates, (2) a Grants Program application submission checklist, and (3) the Certifications and Assurances Statement.

CONDUCT GRANTS PROGRAM LAUNCH WORKSHOP On February 13 and 14, 2019, the GPTech team held a Grants Program launch workshop, attended by more than 75 individuals from the financial sector, development/humanitarian agencies, project implementation, and private-sector energy companies. On the first day, GPTech presented an overview of the Grants Program, the challenges for private-sector engagement, and the opportunities for energy access. On the second day, Eng. Ranya Sherif, Senior Environment Team Lead with United Nations High Commissioner for Refugees (UNHCR) in Kampala, spoke about accessing energy issues in refugee areas, and Energy 4 Impact gave an in-depth presentation about the Grants Program, discussing its policies, procedures, and the application. The workshop was attended by representatives from the full range of stakeholders, with a particularly high representation by PAYGO SHS companies. The workshop provided an opportunity for SHS companies to engage with GPTech and to clarify the requirements of the CfP.

Approximately eight energy service companies represented by 12 delegates attended one-on-one informational sessions that followed each morning’s more general presentations. This was a time for companies interested in the Grants Program to have one-on-one discussions with the GPTech team.

It proved strategically useful to use the Power Africa Uganda Electricity Supply Accelerator (PAUESA) workshop for soft launching the Grants Program. PAUESA’s work in Uganda is both established and

respected. PAUESA's hosting of the 'Sourcing Finance to Increase Energy Access Workshop' at the time that GPTech proposed to launch the De-risking PAYGO SHS in Ugandan Refugee Settlements Project provided a convenient opportunity to soft-launch the initiative on an established and familiar platform. The grant-focused character of the workshop meant that many of the stakeholders that GPTech intended to target would be participating in the workshop. This included private sector organizations, industry associations as well as donor and government organizations. The GPTech team effectively leveraged the traction and networks that these USAID/Power Africa implementing partners had established, which was important given the quick turn-around times of the De-risking PAYGO SHS initiative. The level of interest in the Grants Program was very encouraging, and the questions and discussions were relevant, which offered insight into the de-risking options that were likely to be proposed.

COMPONENT 1.2 GRANTS PROGRAM PROJECT IDENTIFICATION, APPRAISAL, AND SELECTION

CALL FOR PROPOSALS LAUNCH The CfP was launched on February 20, 2019, with announcements sent to the following communication channels:

- The *Daily Monitor*, a local Ugandan newspaper (both print and online);
- Direct outreach to stakeholders/platforms, including the United State Energy Association, United Nations Capital Development Fund, and UNHCR;
- By email to participants of the Sourcing Finance to Energy Access workshop;
- Social media (LinkedIn, Twitter); and
- Power Africa Beyond the Grid team and their networks
- Other global networks, including Kenya.

On the same day as the CfP was announced, the team launched the web page, <http://greenpoweredtechnology.com/projects/ugandapaygogrants>, which housed the final CfP documents. Additionally, a group email account, grants@greenpwr.com, was established to receive email from interested organizations responding to the announcement. The team received and logged multiple registration requests and questions. Finally, due to an initial technical glitch, the deadline for applications was extended from March 4, 2019, to March 25, 2019.

APPLICATION SUBMISSION The CfP was open for approximately one month, from February 20, 2019, to March 25, 2019. During that period, prospective applicants were able to submit questions, which the GPTech team compiled, answered, and distributed to all registered applicants. On March 14, 2019, the first batch of approximately 25 questions was answered and circulated to applicants.

ELIGIBILITY SCREENING As indicated previously, a set of criteria was applied to applications to assess their eligibility. On March 26, 2019, the Grants Program Manager began initial screening, validated by the Senior Technical Advisor. Of the 12 applications received, 2 were deemed ineligible and the remaining 10 were admitted to the first evaluation stage.

In the first evaluation stage, two members of the GPTech team conducted an initial scoring. Out of a total potential score of 200, the top six applications scored between 159 and 179, and the bottom four scored

between 66 and 138. After group discussion among the GPTech team members, it was decided that a score of 150 marked a “break” in the applicants; therefore, the top six applications were forwarded on to the Technical Evaluation Committee (TEC).

TECHNICAL EVALUATION OF PROPOSALS Applicants with proposals that passed the eligibility screening process were elevated for further review by the TEC. TEC membership was nominated by the GPTech team and selected by USAID. The TEC consisted of the following individuals:

- Ms. Laura Patel; Grants Manager, USAID De-Risking PAYGO SHS project
- Mr. Robert Aitken; Senior Technical Advisor, USAID De-Risking PAYGO SHS project
- Mr. Paul Clark; Access Manager, PAUESA
- Mr. David Jones; Technical Advisor, Power Africa Off-Grid Project

Prior to beginning their respective reviews, each TEC member was provided the Terms of Reference, which outlined the project context, and TEC member roles, expectations, and processes for the review. A TEC orientation call was held to further introduce the members to the Grants Program and the review process. Each TEC member was required to sign each evaluation scorecard which included a declaration of impartiality and confidentiality. The TEC was given approximately five working days to complete its initial scoring, following which several meetings of the TEC were held to discuss the applications, strengths and weaknesses, and where additional information may be needed (and requested from applicants) to complete the evaluation and final recommendation for award. Each TEC member received an evaluation criteria and scoring template, which included the following four key criteria categories:

1. Technical Impact
2. Performance and Capabilities
3. Financial Management
4. Sustainability

Once the applications had undergone preliminary scoring, these scores were collated and averaged across the reviewers. The GPTech team presented a list of recommendations for TOCOR approval.

GRANTS SELECTION After the March 25, 2019, closing date for submission of the Grants Program applications, and in accordance with the USAID-approved Grants Program Manual and associated Grants Program procedures, the GPTech team initiated the screening and review process for the 12 applications. The first meeting of the TEC was held on April 16, 2019, with all TEC members present to discuss the scoring. The TEC agreed that the applications from Fenix International and BrightLife stood out for being more professional and comprehensive and meeting all of the eligibility criteria under the Grants Program. Both applicants identified and addressed specific challenges to entering the refugee setting and provided more details on how the activities would be implemented. Both applicants also showed proposed activities integrated into an overall plan.

Although SolarNow proposed a much less aggressive sales targets compared to other applicants, the TEC found the proposed targets reasonable, given the uncertainty of the refugee context and SolarNow’s sales model. The applicant also demonstrated a strong track record in Uganda, with the sale of 20,000 SHSs

since 2011. The TEC agreed that SolarNow was the clear third place applicant. A second and third meeting of the TEC were held on April 23, 2019, and May 1, 2019, to review additional information SolarNow had submitted, as well as the proposed budgets of the top three applicants. Recommendations for these three applicants were sent to USAID for final approval. Following this, all applicants were notified of the results.

COMPONENT 1.3 GRANTS AWARD, IMPLEMENTATION SUPPORT

FINALIZE GRANT AGREEMENTS WITH GRANTEES Grant agreements were signed with the three new grantees, Fenix International, BrightLife, and SolarNow. The grant agreements covered such issues as the terms and conditions, approved budget, payment schedule and milestones, reporting guidelines, and payment details.

MONTHLY REPORTING AND CHECK-IN CALLS WITH GRANTEES Grantees submitted written reports on a monthly basis to the GPTech team and followed up a few days later with a check-in call with the GPTech team. The monthly reports provided updates and accomplishments for the preceding month on implementation, communications, and management and outline plans for the coming month. The reports also provided updates on the tracking indicators for number of products sold, staff hired and trained, and any challenges the grantees may be facing.

COMPONENT 1.4 MONITORING, EVALUATION, AND LEARNING PLAN

DEVELOP PROJECT-LEVEL MONITORING, EVALUATION, AND LEARNING (MEL) PLAN To ensure that this task order progresses effectively and achieves its outcomes and objectives, as stated in the Results Framework of the project work plan, the GPTech team measured performance of the project in accordance with contract reporting requirements. The project tracked three Power Africa indicators: (1) number of SHS sales (disaggregated by type of connection and sales to refugees vs. host community residents), (2) number of refugees and host community residents employed and trained (disaggregated by gender and location), and (3) the number of SHS companies selling in refugee settlements and/or host communities.

Grantees reported on these indicators via their monthly written reports as well as at the mid-point and conclusion of the implementation period.

DEVELOP GRANTEE-LEVEL MEL PLAN Each grantee developed a MEL framework tailored to its proposed project activities. Each grantee MEL framework included the same high-level Power Africa indicators that contribute to the project-level MEL plan with the addition of customized indicators specific to their activities. As part of their MEL plan, grantees also reported on challenges and opportunities of working in refugee settlements and host community contexts, and any variations to their business model to suit this context.

PROJECT OUTCOMES AND IMPACT

An assessment of the project's outcomes was carried out through a mix of customer and staff interviews in the refugee settlements and host communities as well as with the grantee company management.¹ The visit methodologies and interviewees are included in the annexes.

OUTCOME I

Increase private sector PAYGO SHS companies' participation in Kiryandongo and Rwamwanja refugee settlements and host communities through providing incentives for SHS providers establishing or expanding operations to serve these areas

There is clear evidence that there is increased private-sector PAYGO SHS company participation in the refugee settlements and host community. Three SHS companies - BrightLife, Fenix International, and SolarNow - are now actively selling PAYGO SHS in Kiryandongo and Rwamwanja and the host communities.

Prior to the project, there was private-sector participation in the refugee SHS market but it was dependent on cash sales only. In Kiryandongo, two of the grantees had already sold systems to refugees for cash and were selling to members of the host community on credit. There were, and remain, a number of private market outlets selling low-quality, inferior solar panels and batteries to refugees for cash.



Betty Aber purchased two Fenix systems, providing lights and phone charging.

Photo source: GPTech

The grant funds from the project have allowed the three SHS grantees to sell PAYGO systems to refugees by de-risking the proposition. Prior to the project, the SHS grantees would only sell PAYGO SHS systems to Ugandan nationals with Ugandan ID.

Selling in refugee settlements was already of interest to two of the grantee companies, but it was considered risky with too many unknowns and challenges. For example, the companies were not sure what sort of permissions were required, the levels of income, the source of income, current access to solar, current energy use, how long refugees stay, how things work in the settlement, network coverage, mobile money exposure, and identification proof. The grantees did not know how to process a refugee ID. However, the

¹ It is important to note that no baseline survey was carried out so any assessment will necessarily be subjective only. The grantees carried out an assessment of the market at each location but that does not provide a baseline against these specific outcomes.

greatest worry was that the income levels would be too low and the refugees would be unable to pay. In addition, selling to refugees on credit was also considered risky, as it is not possible to assess their assets (credit-worthiness) in the same way as it is with Ugandan residents.

The grant helped in de-risking the market in terms of subsidizing the establishment of sales offices, travel, and recruiting staff. In addition, being part of the project helped with gaining access to the settlements and with partnering. The opportunity has allowed the grantees to understand the market and to open up a new market base. It was found that the market is not dissimilar to other remote rural settings, such as in Northern Uganda, although there are a few additional challenges.

The project incentives have allowed all three grantees to change their customer assessment process to include the refugee ID. For BrightLife and Fenix, who sell small PAYGO SHS systems that can be paid for daily, the change to ID was the main update to their procedures. The other customer vetting systems, such as photo, mobile phone number, and next of kin mobile phone number, remained the same. Agents ask about income, energy expenditure, and ability to pay before taking on a customer. They do not carry out formal credit checks unless a customer is requesting an upgrade. The United Nations handouts is a key source of income for many refugees (referred to as *mopokelo* at 31,000 UGX [8.4 USD] per household member per month). The customer's ID is checked by the head office in each case. For both Fenix and BrightLife, if the customer does not pay, then the SHS system automatically switches off until there is credit. Any days 'locked out' are added to the end of the contract period; if there is no payment for 30 or 90 days (depending on the company), the system is repossessed.

SolarNow sells larger systems on monthly payment packages and therefore normally requires more stringent credit checking. For Ugandan residents, the company assesses the potential customer's assets and income to determine ability to pay, but this is very difficult with the refugee population. In addition, the deposit required by SolarNow was also a barrier to refugees. Therefore, as a result of the project grants, SolarNow has made a number of changes to its procedures for refugees. As above with the other grantees, SolarNow has added the refugee ID to its list of allowable IDs; it has added a process where the local council/cluster leader in the settlement provides a reference for the refugee to validate that the refugee is capable of paying; and the company has reduced the deposit needed from 30–50% to 10% or 15%. Refugee customers are tagged on SolarNow's systems so the credit team knows to deal with these customers differently.

Another change SolarNow has made for this project is to base the staff performance targets on sales value rather than on revenues (i.e., includes repayments). SolarNow normally recruits centrally; however, for this project, the company recruited locally and found the local staff to be more successful.

As a result of the project, SolarNow and Fenix have opened new sales points in Rwamwanja town, which is at the entrance to the refugee settlement. In Kiryandongo, SolarNow has expanded its operation, and BrightLife and Fenix have established new sales branches.

FUTURE PROSPECTS

BrightLife is not happy with the repayments in Kiryandongo and proposes to downscale its new sales branch. The branch will allow cash sales and will have a skeleton staff who will deal with repayments and after sales. PAYGO may be an option, but only if deposits are higher so the company has less exposure. BrightLife believes that the market is less prosperous than other markets in which the company operates,

and there is not a history of credit purchases nor a legacy of hand-outs. Training and education on credit and financial inclusion would help.

The refugee ID is now in BrightLife's system to allow the company to sell to refugees from other locations, but it does not control where its agents go. If an agent does not see a market, BrightLife will not go to that location.

Fenix International is happy with sales and repayments so far but considers it still early to say if it would keep the expanded operations. In the short term, the new branches will merge with nearby branches; once Fenix has seen a longer repayment history, it will be in a position to make a decision. Now that the refugee ID is in its system, it would be easy to enter new refugee areas, and the company will consider this from existing sales branches that are close to refugee settings. However, Fenix is unlikely to consider setting up a new sales branch dedicated to a new refugee area.

SolarNow needs to see longer repayment histories for refugees before deciding whether to expand in this market or not. The company plans to keep the branches open and assess if each one is economically viable on its own. If repayments improve, then it would be possible to expand this market. Now that the refugee credit process is embedded in SolarNow's system, it is possible for the company to sell to refugees anywhere in Uganda.

OUTCOME 2

Increase socio-economic development in the settlements and host communities through private sector participation (PSP) and market development activities

There is emerging evidence that there is an increase in socioeconomic development since PAYGO SHS systems have been sold in the settlements and host communities. Some customers are paying less for energy than before and those with businesses have an increased income. There is therefore more money in the customers' households, and through grantee employment of local staff, there is also additional income in the two areas.

The largest difference, mentioned by all customers, is the quality of light from the new systems and that the light lasts longer than their previous solutions. Previously, the customers had a mixture of energy sources for light, including a local market-bought solar panel and battery (or a UNHCR provided solar lantern) as well as torches, candles, kerosene, and mobile phones. In the survey of 38 customers, 51% had been using kerosene and candles and 34% had been using solar. Their solar systems had been performing badly with little charge left. One customer, who takes in orphans and has a household of 18 people, was paying 4000 UGX a day for candles for children to read. After the UNHCR lantern failed, that customer now pays 900 UGX a day. The new lights are bright enough "to sort rice," or, as one customer said, it is "incomparable!"

The bright light has allowed more children to study and read at night, with 74% of customers mentioning it as one of the advantages. The light has created more flexibility to the day, particularly for women, by extending the lit hours and allowing them to cook, clean, and wash after dark. Extending productive hours was cited by 61% of the respondents. The additional sense of security provided by the outside lights was also greatly appreciated.

Reliable mobile phone charging at home was valued by all customers. Beforehand, customers stated that phone charging at home was unreliable and/or they had to pay UGX 500 per charge in Kiryandongo or UGX 300 per charge in Rwamwanja. Those with televisions or radios appreciate the entertainment and being up to date on world and local news. About 47% of the customers interviewed liked the newly available news and communication. In some cases, the home entertainment kept children from wandering off to find it elsewhere and has made it easier for adults too. The diversion of television and radio has been particularly appreciated since the Coronavirus Disease 2019 (COVID-19) pandemic lockdown, as children are home all the time. A number of specific examples are included in the boxes below.

Another area of socioeconomic development is financial inclusion. There has been limited impact relating to financial inclusion. Of the customers interviewed, 32 were using mobile money for payments and only 4 of these customers were previously unfamiliar with mobile money. In interviews with the grantees, they suggested that mobile money was not so widespread and that they had to introduce it, but there are no figures for this. Some of the sales agents said that some customers did not want to use mobile money payments because of the language barrier. There has been some increase in financial inclusion, albeit limited. All told, customers who show good repayments have better credit ratings that can be judged in the future. For example, Fenix uses repayment history to assess credit rating for any upgrades.

OUTCOME 3

Support development of the local refugee and host community economy through inclusion of entrepreneurs in refugee settlements

There is emerging evidence that the PAYGO SHS systems are resulting in greater income for established businesses and allowing for new small-income generation for others. The following anecdotal examples profile the typical economic beneficiaries:

- A small business PAYGO customer has increased her income due to the ability to stay open longer and attract customers with the lights.
- A mobile phone charging provider notes the cost savings from requiring less diesel for the generator.
- Refrigerator operators attract more customers because of the cold beverages or are able to keep fish fresh for longer.
- Six customers started a new small business charging mobile phones.
- One customer had extended a light to a neighbor and was charging for the light.
- Four customers interviewed were charging for television showcasing.

PROJECT OUTPUTS

The project made significant progress towards the targets for all indicators as demonstrated in the table below.

Table 2 Targets and Indicators

NO.	INDICATOR	TARGET	RESULTS
			End of 12-mo Grant Period
1	Number of new SHS direct off-grid connections from PAYGO SHS sales	10,000	4137
	Type of connection (e.g., household, business, school, health clinic)	n/a	Business: 344 Households: 3706
	Sales to refugees and host community members	n/a	Refugees: 903 (22%) Host Communities: 3234
	GNDR-2: Percentage of female participants in USG-assisted programs designed to increase access to productive economic resources	n/a	31% of sales to women (1286)*
2	Number of refugees and host community members trained and employed by PAYGO SHS companies, including employment on a commission basis	15	285**
	Male/Female	n/a	Female: 54 (19%) Male: 230 (81%)
	Refugee	10	34
	Host community member	3	251
3	Number of PAYGO SHS companies entering and actively selling in Kiryandongo and/or Rwamwanja refugee settlements and host communities	2	3
	Number of SHS PAYGO companies submitting applications in response to Grants Window	n/a	12
	Number of SHS PAYGO companies awarded grants and entering markets of Kiryandongo and Rwamwanja settlements and host communities	n/a	3
	Number of women as customers to PAYGO products and services	n/a	1286
	Number of women integrated into sales force and management teams of PAYGO SHS companies awarded grants	n/a	54

* These are cases where women signed the SHS contract but note that most households include females who will benefit from the SHS services.

** 35 salaried employees and 250 commission-based agents trained and recruited. 84 still employed at end of grant period.

OUTPUT 1

Two PAYGO SHS companies entering and actively selling in Kiryandongo and/or Rwamwanja refugee settlements and host communities

Three PAYGO companies are actively selling across the two refugee settlements and host communities. Fenix and SolarNow are active in both Kiryandongo and Rwamwanja, and BrightLife is active in Kiryandongo only. All three companies have sales agents who are working in the settlement as well as in the host community.

Both SolarNow and Fenix have opened a new sales branch in Rwamwanja town, which is at the entrance to the settlement, and they have staff active from these branches.

In Kiryandongo, all three companies have established or expanded sales offices in Bweyale, the closest town and market. It is about three kilometers from the settlement and refugees travel freely between the town and the settlement. Many refugees live in the town.

Fenix had originally planned to open points of sale in both the settlements and the host communities; however, upon gaining access to the settlements and surveying the residents, the company learned that very few business activities took place within the settlements. Most activities happened within the host community business areas as they are both easily accessible to residents of the settlements and have a larger population (i.e., larger customer base). Therefore, Fenix decided against opening additional points of sale within the settlements.



OUTPUT 2

10,000 new actual direct off-grid connections from PAYGO SHS sales in the target refugee settlement/s and host communities

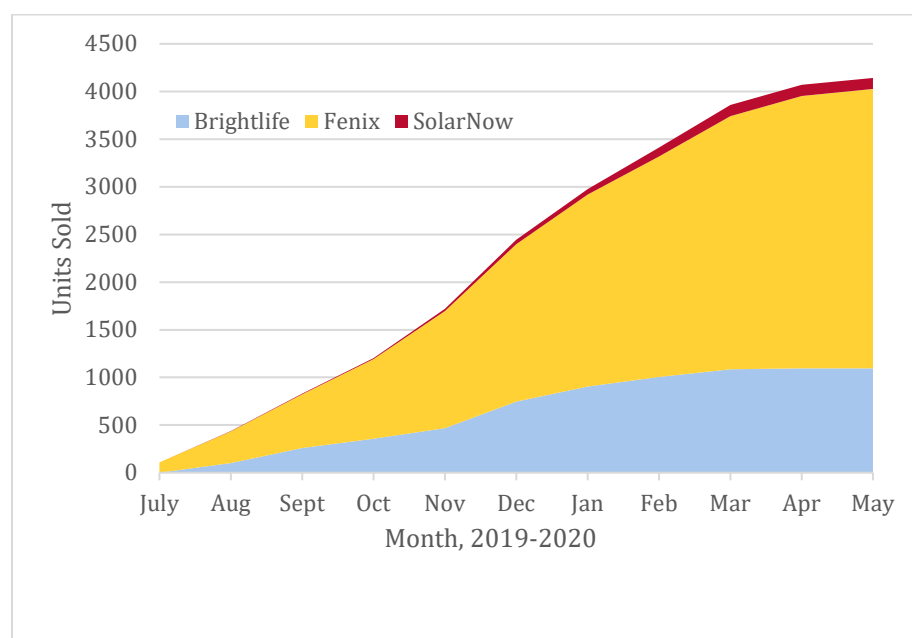
TOTAL SALES

At the end of May 2020, there were 4,137 customers among the three grantees across the two settlements and host communities. The following figure shows the growth in sales since sales commenced in July 2019. There was a delay to gaining access to the settlements so sales in the settlements started at least a month later than expected.



Grantees' sales offices in Bweyale, outside Kiryandongo settlement
Photo source: GPTech

Figure 2 Total Sales at Both Settlements

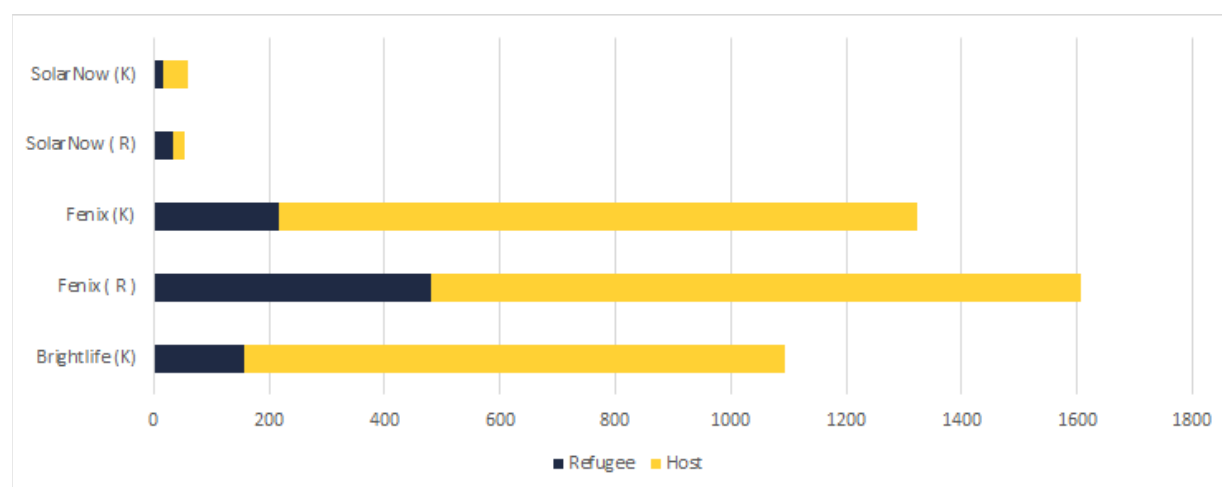


REFUGEE VS. HOST COMMUNITY SALES

Of these customers, about 22% are refugees and 78% are from the host community, as shown in the following figure. There is a clear difference between Rwamwanja and Kiryandongo in terms of the percentage of refugee customers. About 30% of Fenix’s customers in Rwamwanja are refugees, while only 16% of Fenix’s customers in Kiryandongo are refugees. For BrightLife, the figure is also low in Kiryandongo, with only 14% of customers being refugees. SolarNow’s customers are approximately two-thirds refugees in Rwamwanja and one-third refugees in Kiryandongo.

The lower figures in Kiryandongo could be due to refugees using Ugandan IDs. Once refugees have been in Uganda more than five years, they are eligible for a form of Ugandan ID. In Kiryandongo, there is also a blur between the settlement and the host community. According to the SHS company branch staff in Bweyale, between a quarter and a half of the population of Bweyale are refugees. The settlement also has a number of Ugandans living in it. There are internally displaced Ugandans who relocated after landslides and Ugandans who have chosen to live in the settlement to set up business.

Figure 3 Number of Refugee and Host Community Customers



PRODUCTS SOLD

Each grantee offers a range of SHS products. Fenix and BrightLife offer off-the-shelf systems while SolarNow offers a system designed for the customer's needs. The majority of systems sold were the smallest in each of the grantees' ranges. For example, 82% of all Fenix's sales were of its smallest and cheapest system, the Power 2, with 90% of refugees buying the Power 2. In comparison, 42% of BrightLife's sales were of its WOW60, but its largest system is also small at only 10Mp. Most of SolarNow's sales were of its two smallest systems – 50Wp and 100Wp. The following tables show the systems on offer, approximate prices, and numbers of sales.

Table 3 Solar Home Systems Offered by Fenix

FENIX	SYSTEM DETAILS All include mobile charging	DEPOSIT (UGX)	DAILY PAYMENT (UGX)	PAYMENT PERIOD (months)	% OF SALES
Power 2	10W 2 lights	29,000	500	35	82%
Power 3+	10W 3 lights and radio	49,000	800	30	9%
Power 5	20W 5 lights and 2 phone chargers	69,000	1,100	27	4%
Power 6+	20W, 6 lights and radio	89,000	1,300	27	
TV Deluxe	34W, TV, 3 lights, Zuku 1 year, 1 phone charger	149,000	3,000	26	5%

Table 4 Solar Home Systems Offered by BrightLife

BRIGHTLIFE	SYSTEM DETAILS All include mobile charging	DEPOSIT (UGX)	DAILY PAYMENT (UGX)	PAYMENT PERIOD (months)	% OF SALES
WOW60	6 W - 3 lights	34,999	900	18	42%
WOW100	10W - 4 lights and portable FM radio	44,999	1,300	17	32%

Biotite 620	6W - 4 lights, radio	39,999	1,150	19	27%
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Table 5 Solar Home Systems Offered by SolarNow

SOLARNOW	SYSTEM DETAILS	DEPOSIT (UGX)	MONTHLY PAY (UGX)	MONTHLY PERIOD (months)	% OF SALES
50Wp	tailored to client needs	180,000	6,700	18	7%
100Wp	tailored to client needs	The cost of each system will depend on the lights and appliances included and length of credit agreement. Most are 18 months or less and are paid monthly. Costs range from the costs listed above for a basic system up to approximately 10,700,000 UGX for a 500 Wp system including appliances.			45%
120Wp	water pumping				5%
150-310Wp	tailored to client needs				37%
500Wp	tailored to client needs	1,600,000	480,000	18	6%

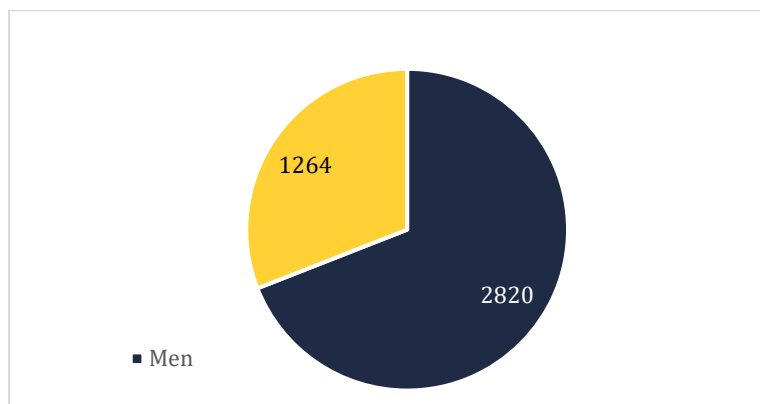
TYPE OF CUSTOMER

The majority of systems were sold for household use rather than for business use. The systems were used for lighting, mobile phone charging, and some radio. Those with larger systems added a television. Approximately 8% of both Fenix and BrightLife's customers were business customers (e.g., shops and bars), primarily using the system for lighting their premises and extending hours. It is also worth noting that household use may also include some business use, such as mobile phone charging and farmers using mobile phones for weather reports and crop pricing.

More of SolarNow's customers were for business use, representing 32% of their customers. These account for the sale of most of the larger SolarNow systems. Business uses include irrigation, cinema/television-showcasing, bars, retail, large-scale mobile phone charging, hair salons, health clinic, selling cold drinks, and food preservation.

About 31% of total sales were made to women, as shown in the following figure.

Figure 4 Number of Men and Women Customers



IMPACT OF COVID-19 ON OVERALL SALES

To limit the spread of COVID-19, the Ugandan Government ordered a partial lockdown on March 18, 2020, followed by a full lockdown and curfew on March 30, 2020. The grantees noticed a slowdown in sales in early March due to additional anxiety. By the end of March, all three grantees had to stop selling and closed all their sales offices. As restrictions were lifted, it was still not possible to open the sales branches or to travel on public transport, so sales remained stagnant. A few sales were made with existing stock, but the grantees lost at least two months of sales.

At the same time, the lockdown has had a significant impact on the customer base, which has lost some or all of its income, in particular due to travel and market restrictions. The UNHCR cash stipend (*mopokelo*) has also been reduced by more than 25%. This means that the credit portfolios are at risk. One grantee carried out a national snap survey of 70 customers and found that 95% had switched to one meal a day and many were soon to run out of essential items. Our survey of 38 customers showed that 84% of customers have seen a reduction in their monthly income.

SALES TARGETS

The target for the one-year grant period was 6,975 sales, while the overall project target is 10,000 customers with SHS to be achieved within 22 months of start.

Table 6 Actual Sales vs. Target, by Grantee

COMPANY	TARGET (at 12 months)	ACHIEVED (May 2020)	% OF TARGET ACHIEVED
BrightLife	1,725	1,095	62.6%
Fenix	5,000	2,930	58.6%
SolarNow	250	112	46.8%
	25 kW	19.1 kW	71%
TOTAL	6,975	4,137	61%

Sales figures generally fluctuate depending on the time of year. Typically, the grantees see the highest number of sales between November and January. In the project sites, this coincides with Christmas, harvesting, and selling maize and is prior to the February school fees due date. In addition, sales often increase month on month after establishing a new sales office. SolarNow was selling a much larger, more expensive system than Fenix and BrightLife so its sales increased more slowly over time as sales staff built relationships and customers vacillated on making a large purchase. Sales for all three grantees were adversely affected by unusually long rains affecting access and high maize yields, translating to low grain prices and income. The following figures show the monthly sales for each company.

Figure 5 BrightLife Monthly Sales

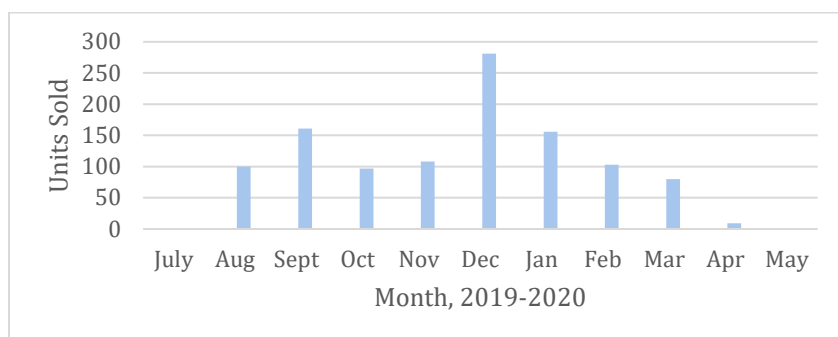


Figure 6 Fenix Monthly Sales

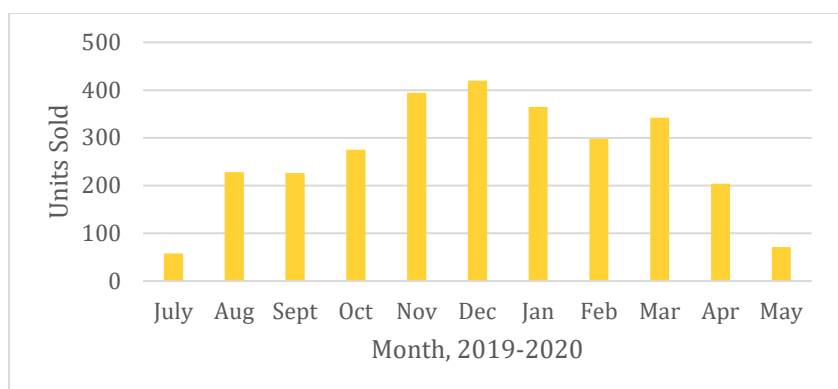
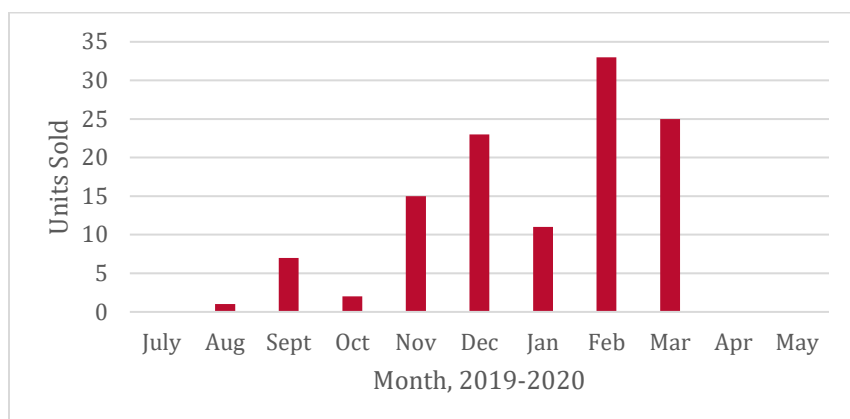


Figure 7 SolarNow Monthly Sales



Without the lockdowns associated with COVID-19, it is possible that all three grantees could have met, or come closer, to their targets. However, the targets were ambitious for the timeframe, and it is unlikely they would have reached the target numbers given one or two more months.

CLARIFICATIONS ON SALES NUMBERS

Each customer is a new direct off-grid connection using PAYGO SHS. Previously, the customers had a mixture of energy sources for light including a local market-bought solar panel and battery as well as torches, candles, kerosene, and mobile phones. In the survey of 38 customers 51% had been using

kerosene and candles and 34% had been using market-bought solar. The remainder of customers used flashlights, batteries, or a genset. As such, many of the customers are not new to solar but are new to PAYGO and have upgraded their system to better meet their needs.

In addition, there are a number of systems that are not working due to theft. There have been a few instances of theft in Kiryandongo refugee settlement affecting both BrightLife and Fenix panels. Customers must buy a new panel (normally for cash) to get their system working again, which may be a hardship. In Kiryandongo the smaller photovoltaic panels are routinely set outside the home on the ground or propped up on the roof. Customers are advised to put the panels inside when they leave the premises. SolarNow's panels are larger and are bolted to the roof, making theft more difficult.

REPAYMENT HISTORY

Repayments and credit history are key to the PAYGO SHS model and will determine how likely SHS companies will be to sell to refugees in the future.

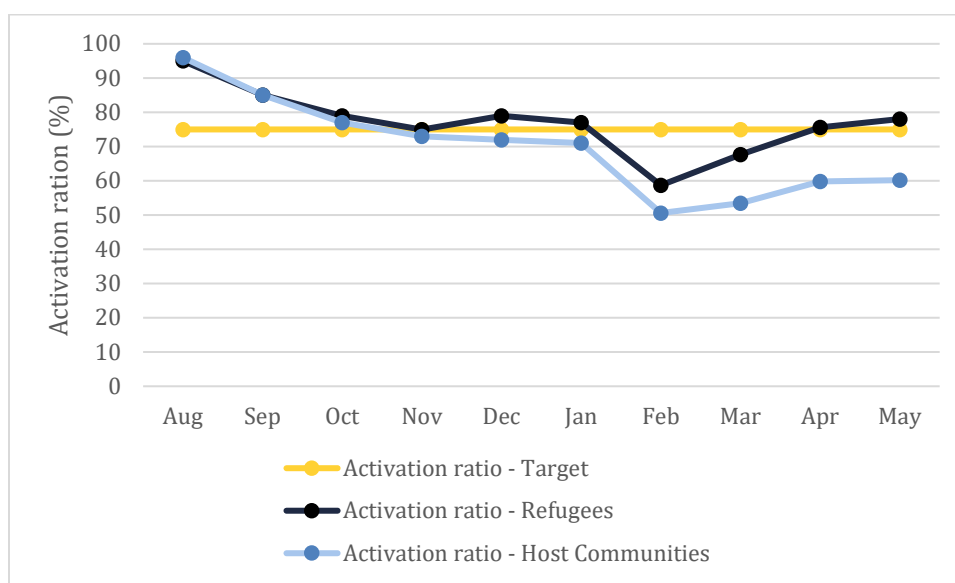
The parameters measured by each company vary slightly, as described below. Repayments across the country are down, however, due to COVID-19 restrictions, but it is still possible to compare the project repayments with the wider company portfolios.

- **BrightLife** measures disabled accounts (e.g., customers have no light because they are out of credit) and the activation ratio, which indicates how much the system has been active (i.e., in credit). This ratio gives BrightLife an idea of when the system is likely to be paid back. Disabled accounts only measure the instantaneous result.

The overall Kiryandongo portfolio is performing below the set repayment targets (75% activation ratio) and was already low prior to the COVID-19-related lockdown, as seen in the following figure. However, there is a significant difference between refugees and host community records, whereby the refugee is repaying in line with the national records and within the targets set. Within the host community, the activation ratio is only 60% and 71% with the refugee customers. There are a few factors why refugees have a better payment record: they have no other options and are entirely dependent on solar and they receive regular handout payments. The host community's record is the second lowest across BrightLife's entire portfolio.

The number of repossessions is also measured in the same manner as described above. BrightLife has repossessed 190 units in this project, lower than the absolute target of 260, but above target if measured as a percentage of systems.

Figure 8 BrightLife Activation Ratio



- Fenix** measures active customers, customers with light, and the number of repossessions. Active customers are those who have made at least one payment in the last 30 days, and customers with light are those currently in credit (an instantaneous figure). In the two locations, the percentage of active customers is above the target (85%) for both refugees and the host community. A small number of customers have cancelled/returned their systems, and 114 systems have been repossessed, almost all in Rwamwanja. This is good in comparison with Fenix's larger portfolio. However, it is still relatively early in the loan period, as all Fenix loan periods are greater than two years.
- SolarNow** measures payment behavior, which is measured as Portfolio at Risk (PAR) at 30 days and is an indicator of how many clients are defaulting on payments. SolarNow's clients pay monthly or seasonally. Current data shows that repayments are very low at the moment and have gotten worse since the COVID-19-related lockdown. This was backed up with the customer interviews, where many of the SolarNow customers indicated they were behind on payments. Many customers make partial payments rather than a complete default. Despite this, collections from Bweyale (Kiryandongo) are one of the best in the country. SolarNow has repossessed three systems after trying to work with the customers to help them to pay.

MARKETING ACTIVITIES AND WORKING WITH PARTNERS

Each grantee has carried out extensive marketing activities at both locations including market activations, radio talk shows, bikes, leaflets, T-shirts, hats, and door-to-door visits. They all believe that their marketing is worthwhile and results in more sales. They use the same strategies nationally, although some have been adapted or are more intense on this project. From the interviews with customers, the door-to-door visits were the most common means of learning about the grantees, followed by recommendations from neighbors and friends. T-shirts proved very popular with customers.

Fenix believes that its marketing, including radio, is very useful. The company uses it not only for new sales, but also to engage with existing customers to assure them they are still around. Fenix believes that market activations, where sales staff would tour a neighborhood with banners and loudspeakers to raise attention, were the most effective. During community activations, sales staff set up a booth/tent in a high

traffic area and gather passersby to tell them about Fenix. During these events, flyers are distributed and other promotional materials (hats, T-shirts, etc.) are handed out to better promote Fenix SHS and get the community excited. Not only did these events often provide sales staff the most leads, they raised awareness and offered technical support to current customers. In a ‘normal’ market, Fenix would only have an activation once a week; at the project sites, the company was holding activations three to four times a week. Fenix also relies on referrals and mobilizers. Customers can become mobilizers and receive three days’ credit in return for successful referrals. Mobilizers gather people together and spread the word about Fenix.

SolarNow was more cautious about the impact of radio talk shows. Following a talk show, there is a lot of interest (30 calls after just one spot) but it is too soon to tell if this interest converts to sales, particularly due to the limited capability to pay. SolarNow customers interviewed said that they heard about SolarNow through direct door-to-door sales. The company said that referrals were also a very important tool for finding new customers because networks in the settlements are strong.

BrightLife uses ‘ambassadors’ in addition to the same marketing activities mentioned above. The ambassadors are people who are willing to have a signboard outside their business premises. If someone expresses interest in a system, then the ambassador contacts a sales agent. One ambassador mentioned that he gets about 10 inquiries a week. Ambassadors do not need to be customers and there is no formal payment for posting the signboard, although they are encouraged to ask for some money from the sales agent. The BrightLife manager mentioned that his ambassador boards have been quite successful. Market activations were not as popular in Kiryandongo as they were elsewhere in the market.



Figure 9 A BrightLife Ambassador Displays a Signboard Outside Their Business
Photo Source: GPTech

SolarNow also has ambassadors, who are customers. Each customer has a name plate outside. The ambassador receives 30,000 UGX for every successful referral.

CUSTOMER SERVICE

All three grantees train their customers at system installation how to use the system, how to make payments, and what to do if they need additional help. This was confirmed by the customers interviewed, most of whom had received the training. Only four had not, and it is not clear if this is due to a stricter definition of training.

All three grantees record any queries from the customers on their electronic records. Customers can call central call centers but often call the sales agent who sold them the system or visit the service center. Depending on the issue, the local team will visit the customer and attempt to resolve the problem and will, when necessary, swap a faulty component. Fenix and SolarNow had local technicians based at the branch offices who could conduct some repairs. If the issue was more complicated, then the customer would have to go to Kampala. Similarly, any faulty items with BrightLife systems had to be fixed in Kampala. For all three grantees, this caused delays and unhappy customers. Otherwise, customers generally were happy: 95% of the sample customers were happy with the system and with the company; 22 of the customers interviewed had brought up an issue with the company and most of the issues had been resolved.

The majority of issues raised with agents and by calls to the call centers related to payment and uploading the code, which can be slow due to erratic networks. For instance, BrightLife received 642 calls, 78% were related to codes and payment, and 143 were related to faults. Fenix's call center received a total of 1,650 calls regarding sales, with most regarding customer codes, televisions, power system issues, and battery issues. Most of the issues raised with SolarNow related to over-use of the system, particularly when it is raining. For example, a system may have been designed to charge 50 phones, and the customer used it to charge 80 phones.

Previous concerns that have been mentioned include rats chewing through the wiring and queries relating to the weather when there is less output during the rains. Customers interviewed in December were asked if they had any concerns. One had needed help making repayments, another had a problem with his battery, which was replaced, and one had an issue with MTN (the mobile provider) and her account.

Each of the grantees contacts customers who are struggling with repayments. Fenix has an automated SMS service reminding customers to pay, and BrightLife and SolarNow call their customers. Each company tries to understand the situation and the reasons for non-payment. During the COVID-19-related lockdown, all the grantees have been contacting their customers to check up on them and also offer advice relating to hygiene and social distancing.

OUTPUT 3

Combined 15 new employees trained and permanently employed, consisting of: (a) minimum of 10 refugees and (b) minimum of 3 host community members, by PAYGO SHS companies.

During the peak selling period around Christmas, the three grantees together employed 285 new people. These jobs are divided between salaried and commission-based staff, as shown in the table below.

Table 7 Jobs Created at Peak of Hiring (Dec 2019)

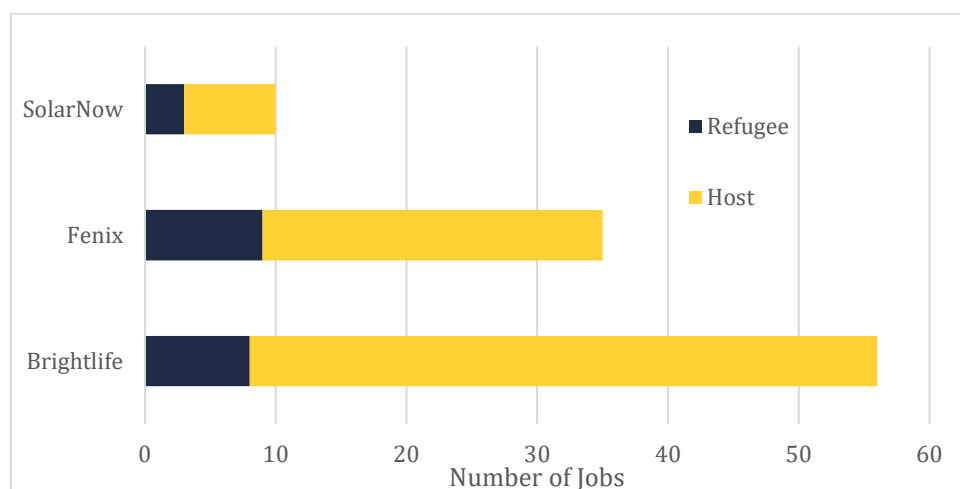
COMPANY	JOBS CREATED
BrightLife (commission)	203
BrightLife (salary)	14
Fenix (commission based)	47
Fenix (FTEs)	5
SolarNow (FTEs)	16
TOTAL	285

However, these figures do not provide the whole picture, as the number of commission-based staff varies over time. At the end of the project in May 2020, the figures were lower due to the impact of the COVID-19 lockdown and the resultant inability to sell. Demonstrating this, over the project period, Fenix hired 47 sales agents (Readypay Champions, or RPCs), 29 of which became inactive within a few months of being hired. BrightLife hired 203 sales agents during the project; 168 left the company. Nearer to the end of the project but before the lockdown, BrightLife had 35 active sales agents and Fenix had 18 active agents.

Of these new jobs, about 20% were refugee employees, as shown on the figure below. The refugees employed were referred by other organizations or people or were customers themselves. Of those interviewed, two were previous volunteers for nongovernmental organizations (NGOs) in the settlements and two were not working, although one had been a teacher in South Sudan. In Kiryandongo, SolarNow has recruited two refugees (out of the four staff recruited); these South Sudanese refugees come from a different settlement (Adjumani) and were referred from the SolarNow branch office there rather than in Kiryandongo.

Of the interviewed newly employed Ugandans, one worked in micro-credit, one was a security guard, one was a boda-boda driver, one was a teacher, another had worked for MTN, and another was an accountant. They are all happy with the job and most believe they can make more money than their previous employ. However, two of the agents interviewed believed they should earn more. However, if the money is less than before, they are still satisfied, as they like the work and the company.

Figure 10 Jobs Created



RECRUITMENT AND RETENTION CHALLENGES

There have been significant challenges related to recruitment and retention, particularly of refugees. Fenix cited recruitment as its biggest challenge throughout the project. Challenges identified included competition from NGOs paying more for social work and on a salaried basis, lack of work ethic, and dependency on hand-outs. In some cases, a lack of education was cited, although this seems to be related to an inability to read and write in English rather than basic education. Training refugee staff was also more difficult, as it is not legal to train them in Kampala, so training had to take place on location. In addition, when English was not fluent, additional translation was required for the trainers and trainees.

Following successful recruitment, BrightLife and Fenix, both offering commission-based positions, experienced a high turnover of staff. In both cases, they said that the attrition was worse on this project than at their other sales branches, although it is always high. The reasons given for this included: employing students who go back to college; refugees go back to their home countries to check on their families, staying away for months; workers go to their agriculture fields when work is required; some people only take the job as a short-term fix to raise funds for a specific objective and leave once met; and others leave for other (unnamed) opportunities. Neither company is in touch with the agents once they

leave to understand the reasons for leaving. However, both companies improved their recruitment processes and expectations as the project progressed.

At BrightLife, the supervisors are responsible for recruitment. They have partially addressed the challenges by forming local partnerships with NGOs working in the settlements who can refer potential staff to them. Once employed, agents are given monthly targets and work for commission as well incentives and loyalty schemes and promotions, such as additional commission rates once sales reach a certain number and assistance with fuel costs. The commission on this project was slightly higher than other BrightLife projects, as the agents could also earn an installation fee, which is not normally available.

During the rainy season, BrightLife expressed concerns about absenteeism due to malaria and cholera. The company also expressed concern about violence toward their agents because of the perception that they carry money or a SHS on them.

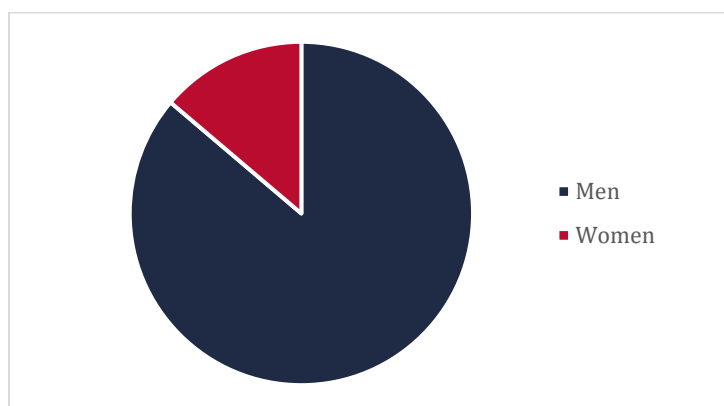
Fenix has found that the best recruitment is customers who first become mobilizers and then become an RPC (ReadyPay Champion), a commission-based agent. Mobilizers are not paid but get three days' free power on their system (and the credit is taken from the total loan) and some airtime. The RPCs are given monthly targets of between 20 to 30 sales. They are paid in commission per sale plus airtime (which can be converted to money). To get a decent wage they believe that they need to sell at least seven systems in a half month. The commission rate is tied to the repayment record of their customers over the first four months. As the sales numbers increase and the repayments improve, the RPCs can get a significantly higher commission. If they perform well, the agents can move up in the company. They have mentorship programs including options for becoming team leaders, loans for smart phones, support for goal setting (e.g., buying a car), and performance rewards. Fenix is also looking at options on training and education (more broadly than Fenix-related, e.g., English) and other options for promotion to help in recruitment.

Fenix has also engaged with the community leaders and AVSI's (Association of Volunteers in International Service) extension workers. But Fenix found they are already very busy and so it has not worked for them.

SolarNow says that it does not have any problems since they are referred potential staff members by trusted organizations, such as AVSI, in Rwamwanja. Two staff left; one did not stay beyond the three-month probation period and the other left for compliance issues. At the beginning of the program, SolarNow tried to recruit on its own, but that was very difficult. SolarNow offer salaried jobs to college graduates, which is a different proposition from the other grantees and is more attractive than commission-based jobs. Normally, SolarNow recruits centrally but found that local recruitment was more successful, partly due to the language ability.

Approximately 19% of the jobs went to women. The grantees said that it was difficult to recruit women. Possible reasons cited were that many women do not like traveling door-to-door on foot, carrying inventory, and women took disappointment worse than men after spending lots of effort on potential customers who then do not sign up. Most sales are made to men, as they are often the financial heads of the household, which also may have some impact on women's desire to be sales agents. One company also mentioned that many women needed permission from their husbands and, in some cases, it caused strife in the family (even violence) when the husband wanted to take the money the wife had earned. Some women were accused of being promiscuous because they spent the whole day away from the home.

Figure 1 | Jobs by Gender



STAFF TRAINING

It is clear that training is being carried out by all three grantees. Each company provides initial training for new employees as well as update and refresher training.

SolarNow provides two to three weeks of training in Kampala to its new recruits. The agents are well informed, as they learn about system design as well as credit management. One agent interviewed mentioned that the training was ‘tedious’ and she almost gave up; however, she is now enjoying the job.

Fenix offers a two-day training course to new RPCs, which the RPCs appeared to appreciate.

BrightLife offers initial training followed by frequent refresher training sessions.

KEY SUCESSSESS BY GRANTEE

BRIGHTLIFE

SUB-AWARD AMOUNT: \$135,658

PURPOSE

BrightLife's purpose was to expand operations to market its SHS products to the refugees and Ugandans living in the Kiryandongo settlement and in its surrounding host communities for the course of the 12-month pilot.

KEY ACHIEVEMENTS

BrightLife succeeded in establishing and branding a storefront in Kiryandongo. It trained over 200 sales agents, 130 of which made at least one sale. Despite high attrition rates, a common challenge in the area, the company signed contracts with 70 agents. The company was likely on pace to meet its sales target of 1725 SHS, but due to the nationwide shutdown for COVID, sales virtually stopped, limiting the company to a total of 1095 sales. Repayment rates for refugees were nearly double of customers in the host community, with refugees achieving a 51% repayment rate and host community customers achieving 30%. In total, 190 units were repossessed, which complied with the project target ceiling of 260 units.

PROGRESS ACHIEVED TOWARDS INDICATORS

Table 8 Project Indicators for BrightLife

NO.	INDICATOR	TARGET	RESULTS	
			End-Implementation (5/31/2020)	
1	Number of new SHS direct off-grid connections from PAYGO SHS sales	1725	1095	
	Type of connection (e.g., household, business, school, health clinic)	n/a	4% businesses 96% households	
	Sales to refugees and host community members	n/a	14% to refugees 86% host community members	
	GNDR-2: Percentage of female participants in USG-assisted programs designed to increase access to productive economic resources	n/a	37% of sales to women*	
2	Number of refugees and host community members trained and employed by PAYGO SHS company, including employment on a commission basis	14	217**	

Female	n/a	17%
Male		83%
Refugee		7.5%
Host community member		92.5%

* Note: most households include women and girls who will benefit from the SHS services, not only those where the woman has signed the contract

** 14 salaried employees, 203 commission-based agents trained and recruited of which 168 left, 45 still employed at end of grant period

SOLARNOW

SUB-AWARD AMOUNT: \$112,572

PURPOSE

SolarNow's purpose was to launch operations to market its SHS products to the refugees and Ugandans living in the Kiryandongo and Rwamwanja settlements and surrounding host communities targeting at least 250 customers in the course of the 12-month pilot. SolarNow's product portfolio includes household solar solutions as well as larger business solutions, such as refrigerators, phone charging stations, barber supplies, and solar water pumps.

KEY ACHIEVEMENTS

SolarNow sold 112 systems towards its target of 250. This included 19kW in installed capacity towards its target of 25kW. In terms of hiring, SolarNow doubled its target of 8, hiring 16 sales agents and staff. SolarNow also successfully teamed up with AVSI, an organization supporting refugees with education and health, to gain insight into community socio-economic dynamics and help build trust. This partnership facilitated the efforts of SolarNow's sales agents in the diverse communities. Also, of the three grantees, SolarNow had the highest percentage of sales to refugees of 45%. While the total number of units was comparatively less than the other grantees, it is noteworthy that SolarNow's SHS are larger units, nearly of a third of which were applied to productive uses.

PROGRESS ACHIEVED TOWARDS INDICATORS

Table 9 Project Indicators for SolarNow

NO.	INDICATOR	TARGET	RESULTS
			End-Implementation (5/31/2020)
1	Number of new SHS direct off-grid connections from PAYGO SHS sales	250	112 (plus 4 demonstration systems)
	kWp installed	25 kWp	19 kWp (plus 1 kWp demonstration)

	Type of connection (e.g., household, business, school, health clinic)	n/a	32% businesses 68% households
	Sales to refugees and host community members	n/a	45% to refugees 55% to host community members
	GNDR-2: Percentage of female participants in USG-assisted programs designed to increase access to productive economic resources	n/a	27% of sales to women
2	Number of refugees and host community members trained and employed by PAYGO SHS company, including employment on a commission basis	10	16 salaried staff
	Female	n/a	31%
	Male		69%
	Refugee		12.5 %
	Host community member		87.5%

* Note: Most households include women and girls who will benefit from the SHS services, not only those where the woman has signed the contract

FENIX INTERNATIONAL

SUB-AWARD AMOUNT: \$108,404

PURPOSE

Fenix International's purpose was to launch operations to market its SHS products to the refugees and Ugandans living in the Kiryandongo and Rwamwanja settlements and surrounding host communities targeting at least 5000 customers over the 12-month pilot.

KEY ACHIEVEMENTS

Fenix opened two points of sale, one in the host community of Rwamwanja and the other in the host community of Kiryandongo. Fenix hired five full-time employees and hired 47 sales agents. However, due to the high attrition rates in the area, the number of sales agents declined to 18 by the end of the grant period. Fenix sold 2930 SHS towards its goal of 5000. As with the other grantees, the nationwide lockdown significantly curtailed sales in the final quarter of the grant period. Sales were closely split between Rwamwanja and Kiryandongo, reaching 1606 and 1324, respectively.

PROGRESS ACHIEVED TOWARDS INDICATORS

Table 10 Project Indicators for Fenix

NO.	INDICATOR	TARGET	RESULTS
			End-Implementation (5/31/2020)
1	Number of new SHS direct off-grid connections from PAYGO SHS sales	5000	2930
	Type of connection (e.g., household, business, school, health clinic)	n/a	9% businesses 91% households
	Sales to refugees and host community members	n/a	24% to refugees
	GNDR-2: Percentage of female participants in USG-assisted programs designed to increase access to productive economic resources	n/a	29% of sales to women*
2	Number of refugees and host community members trained and employed by PAYGO SHS company, including employment on a commission basis	38 sales agents 12 FTE*	52**
	Male/Female	n/a	23% female employees
	Refugee		50%
	Host community member		50%

* Note: most households include women and girls who will benefit from the SHS services, not only those where the woman has signed the contract

**47 commission-based agents recruited and trained, 5 FTEs, 23 staff still employed at end of grant period

LESSONS LEARNED AND RECOMMENDED BEST PRACTICES

The USAID Power Africa's De-Risking Pay-As-You-Go (PAYGO) Solar Home System (SHS) in Uganda Refugee Settlement project is about more than providing support and de-risking the market development challenges faced by the three grantees. This project has broader enabling responsibilities, such as ensuring that future PAYGO SHS companies interested in entering refugee markets benefit from these experiences and that the relevant stakeholders interested in promoting greater involvement of PAYGO companies within these markets understand the challenges and how to address them. To this end, it is important to document and share the experiences of the grantees with regard to opportunities, challenges, adjustments, and lessons learned; explore coping strategies and adjustments; and develop a best practices framework.

In addition to the following detailed best practices framework, the infographic (Annex A) provides a high level summary of recommended practices.

OPERATIONS AND EASE OF DOING BUSINESS

ACCESSING SETTLEMENTS

The team asked the grantees questions relating to the ease of access and associated impacts on operations and planning. While the grantees did experience some delays in gaining permission from the Office of the Prime Minister (OPM) which houses the Directorate in charge of Disaster Preparedness, Management and Refugees, this was resolved at the onset of the project through intervention by the OPM, ensuring uninterrupted access to the settlements for the grantees for the duration of the project.

While access to the settlements was resolved, there were certain internal engagement protocols and activity controls in effect. For instance, most grantees indicated that their sales and marketing activities could not take place after a certain time of day (from 6pm until morning) and that involvement of local leaders was advisable to ensure suitable turnout for market activation events. The grantees did not consider these practices onerous and, as one of the grantees noted, actually assisted in developing trust between the company and local leaders, with the leaders assisting with communications around market activations in certain instances.

Recommended Best Practice

Gaining permission to access the settlements is a “one-time” requirement. Ongoing engagement with community leaders was not considered onerous and can, in fact, assist with developing trust with the communities via the local leadership. As reaffirmed in subsequent sections of this chapter, trust is a key facilitator.

INFRASTRUCTURE

ESTABLISHING POINTS OF SALE

The team explored the process of establishing points of sale (POSs) or service centers with the grantees. For the most part, it was “business as usual,” with all the grantees successfully establishing and operating POS/service centers during grant implementation. Specifically, retail infrastructure was available, electricity and other services procured, branding was possible, and security was acceptable. The experience was

similar to establishing POS in other, more remote rural areas. As one of the grantees noted, “The infrastructure was there, maybe not as flashy as other areas; one to two rooms were available, just like its other rural offices.”

However, it is worth noting that these retail premises were available in the host communities, not in the refugee settlements. While the distinction is somewhat fluid, with refugees often living among host communities and enjoying the freedom to move between the two, the grantees noted that “most commercial activity takes place within the host communities.” Indeed, toward the end of the project, grantees received more complaints regarding the distance between the POS and refugee customers. This was less of an issue with Solar Now (SN), as that grantee had far fewer customers because of its larger system product offering. For BrightLife (BL) and Fenix International (FI), both of whom had far more customers with their high volume, smaller PAYGO system within the refugee settlements, this was more of an issue. While infrastructure may have been lacking in refugee settlements, it was not commercially viable to establish a formal POS/service center within these refugee settlements because the bulk of the customers (70–80%) resided within the host communities. An alternative service approach was proposed, in hindsight, to deploy agents “deep within the settlements” to set up a more informal POS or point of contact to address this issue. However, the issue was not considered extensive nor severe and was never actively corrected.

Recommended Best Practice

There is certainly suitable POS infrastructure within the host community settlements, and it is within these settlements that most economic activity takes place. Future PAYGO service providers may investigate more of a satellite presence within refugee settlements in the future, particularly if and when the share of customers from within these settlements increases.

ACCESS TO MOBILE MONEY AND SMART PHONES

Digital payment and financial inclusion require the availability and use of mobile money and mobile phones. For the most part, the experience of the grantees suggested that most households have access to mobile phones although those that did not were still an impactful minority. To this end, BL noted that “while many of the customers have mobile phones, there is a significant number of people or families who do not own one, making access to PAYGO solar impossible for them.” A further issue was limited mobile money network penetration (i.e. number of accessible mobile money agents), whereby refugees had to travel certain distances to access this agent network. The lack of access to mobile money and/or smart phones was clearly more prevalent within the refugee communities than host communities. Even so, the grantees did not identify this as a key constraint. SN noted that refugees that were not familiar with mobile money were “simply trained.”

Interviews with customers of the three grantees noted that 4 of the 21 respondents (or 19%) were using mobile money for the first time. Of these four customers, three were from the refugee settlements.

Recommended Best Practice

While it was evident that not all households owned mobile phones and not all customers were familiar with mobile money, it is equally evident that these groupings represented a minority. While the mobile

money network is likely to improve over time as the demand for the service increases, perhaps of greater concern to the grantees was the inadequate telecommunications signal/network (discussed below).

TELECOMMUNICATIONS/CELLULAR NETWORKS

Those grantees with larger customer bases (BL and FI) based their business model on using digital finance/platforms and managing their customers remotely to reduce overhead, logistics, and to streamline the model. SN's business model (i.e., lower customer ratio) relied on personalized customer relations, described as a "personal rather than transactional" relationship. Regardless of the business model, for digital payments and communications to work effectively, the telecommunications signal network needs to have suitable reach and reliability.

Not surprising, BL and FI indicated the most frustration was related to network status. BL stated that the network signal with the Bweyale/Kiryandongo area had "a lot of network gaps," which frustrated the customer's ability to pay (for instance, delays in the credit code reaching the customers' phone) and impeded BL's ability to communicate with customers on issues such as system performance issues and non-payment. FI noted "persistent network problems," which hindered the customers' ability to pay and made it difficult, at times, to bring new customers on board. Network challenges related to both voice and data.

Recommended Best Practice

It is important to put these challenges into perspective. While the PAYGO operators did not regard these network issues as "high risk," their impact on customer on-boarding, system activations/payments, and the implementation of effective after-sales services have to be acknowledged. Inadequate telecommunications signal is one of the persistent challenges that PAYGO companies face in ensuring their services are available in more remote areas. While telecommunications network infrastructure is growing, the only realistic short-term intervention proposed by the grantees was "patience."

RECRUITING/RETAINING STAFF

One of the socioeconomic targets of the de-risking project was the recruitment and training of local sales agents. While project expectations were for companies to recruit primarily from host communities, a degree of recruitment among refugee settlements was also required. All of the grantees indicated a level of difficulty in both recruiting and retaining local people, particularly from the refugee settlements. The most common challenge was a general reluctance to work on a commission basis. As BL noted, "Many refugees do not want to work for commission." In a similar vein, FI observed that there were "substantially more employment opportunities and cash handouts for refugees in both settlements, and its commission structure is unattractive in comparison." SN noted that sales agents recruited were not accustomed to the "performance management metrics" that are generally imposed on their sales staff.

Grantees cited the refugees' dependence on agriculture for supporting their livelihoods and their reluctance to forgo the certainty of an agricultural yield for the uncertainty of a commission-based employment opportunity (this was more of an issue during certain times in the agricultural cycle). Grantees indicated that recruitment/retention of sales staff in their more conventional markets was easier when there was a lower dependence on agriculture. A further observation was that many refugees were less familiar with a "structured work environment," with recruits demonstrating poor time keeping and an

overall “lack of discipline”; a work culture issue that grantees had not experienced with other customer communities.

Different grantees adopted different strategies to address these challenges. BL worked with Whitaker Peace Initiative, a local nongovernmental organization that already has youth training camps in Bweyale, which would ensure access to potential recruits that had already received some level of training. FI adjusted its incentive structure to include a small retainer that would appeal to potential refugee recruits, among other training-centered solutions. SL focused on greater capacity building and managing key performance indicator expectations more flexibly to ensure capacity and retention.

Problems involving recruitment and retention were never entirely resolved (although the overall impact was arguably not severe). Language issues persisted (most refugees in the Kiryandongo settlement speak Dinka/Nuer or Arabic and in the Rwamwanja settlement, Congolese), and the training courses and materials PAYGO companies use are presented in English and Buganda languages. In addition, refugee mobility impacted the grantees’ ability to retain sales agents. As observed by FI, “Refugees returned to their home countries for extended periods of time (particularly at year end).” One of the key socioeconomic impacts was related to gender; that is, an important metric was the number of female agents recruited as sales agents. All of the grantees struggled to recruit women as sales agents. While one cannot expect a definitive explanation, some grantees suggested that “women needed to get permission from their husbands to work,” and a more resigned, “It’s hard to identify exactly why women are less interested in becoming sales agents.”

Recommended Best Practice

There is no doubt that recruitment, training, and retention of refugee sales agents within the settlements presented a challenge to the grantees. While a range of interventions and adjustments was applied in remedy, the challenge appears to have persisted. Without an awareness of these challenges at project startup, it is unreasonable to expect grantees to develop solutions up front. The solutions that were developed were done so within a diminishing timeframe, which was further shortened by the impact of the coronavirus disease 2019 (COVID-19). With more time and advanced knowledge of the challenges related to recruitment and retention, these nascent attempts at resolving the problem may have been more successful. Certainly, translating training materials into languages more widely spoken among refugees will be necessary. Adjusting commission/incentive structures to better meet payment expectations may make such opportunities more appealing. Importantly, advanced knowledge of these challenges will provide future PAYGO companies the necessary time and space to adjust.

PARTNERSHIPS

The grantees were largely unfamiliar to the refugee and host community markets, thus any engagement with local partners may have provided some leverage in addressing gaps in local knowledge and lack of local brand resonance. In discussing potential partnerships that grantees had developed to support their operations within these markets, there were mixed feelings about their efficacy and need. For instance, BL’s association with Finca’s social enterprise did not give the company the advantage it had anticipated, as Finca’s brand familiarity and recognition “is easy to leverage in terms of trust, as it is a well-known brand.” In response, BL elected to work with other organizations that had already trained people, which would ensure recent trainees would have been vetted for “a certain level of discipline and commitment.” While BL did eventually work with a local organization, it “did not get the big breakthrough” it anticipated.

Both FI and SN worked independently with the local arm of an international organization focused on empowerment, livelihoods, and health. FI's motive for working with this organization was to obtain assistance with identifying and recruiting sales agents. The organization's extension workers were to assist with identifying potential sale agents. Ultimately, this was unsuccessful, as the commission-based nature of the sales agent's payment was unappealing, and the extension workers "did not have much time to commit to Fenix activities." SN was slightly more positive about its association with this organization, suggesting it facilitated the building of trust, which is important when entering new markets. Overall, the grantees felt that the time it took to develop these relationships, establish memoranda of understanding, and conduct related actions was quite protracted, a reality not accommodated by the relatively short grant implementation period.

Recommended Best Practice

In many respects, these grantees have their established way of doing business and opening new markets. Whether it is BL's brand/trust benefits accruing from association with Finca, or FI's more vertically integrated and self-reliant approach to new market development, these PAYGO companies have their customary way of doing business. While the grantees were selected based on their track record, there does still appear to be space for targeted associations with local organizations, particularly around developing trust (by association) and assisting with recruitment and (possibly) training. However, developing effective associations, identifying the right partners, establishing formal expectations, and taking other such measures takes time and needs to be initiated early on in the market development process.

MARKET PROFILE, OPPORTUNITIES, AND CHALLENGES

IS THERE REALLY A COMMERCIAL MARKET IN REFUGEE SETTLEMENTS?

In the early stages of developing the grants project, grantees had some concerns about the actual commercial extent and character of the market for PAYGO solutions, particularly within refugee settlements (as opposed to host communities). While the presence of a commercial market (not without its challenges) is somewhat affirmed by the sales achieved in host communities and refugee settlements, it is worth assessing the grantees' responses to this concern.

BL acknowledged that the market exists, but some of the qualifying features are linked to certain socioeconomic realities. Many refugees are, not surprisingly, used to "hand-outs" (i.e., aid) and are not familiar with long-term credit financing. The lack of familiarity, among other issues, needs to be addressed. In BL's case, it is "not a question of there being a market. The potential is there, but there is inexperience around the PAYGO solution." FI agreed that a market exists in the host communities and refugee camps, with the caveat that it "will have to wait and see how payments perform going forward." SN believed a market exists, given the number of businesses and productive activities in these communities. However, SN's perspective is based on its model of offering significantly larger systems that are affordable only to a smaller segment of the market.

Recommended Best Practice

The short nature of the implementation period presents some limits on determining the true demand and ability to pay for PAYGO products; the early signs are fairly positive. What is required is further education around long-term credit and financial inclusion and more information on population and economic data,

both of which are important for business strategy development. Importantly, the grantees (as well as key stakeholders, such as the Danish Refugee Council and the United Nations High Commissioner for Refugees [UNHCR]) acknowledge that energy access is a priority within these communities. While too early to draw any firm conclusions, it would appear that the treatment of refugee and host markets as a single market addresses possible reservations about the depth of the refugee markets on their own. The impact of COVID-19 on credit portfolios and subsequent questions about the resilience of these markets needs to be taken into account as well. The credit position of the PAYGO companies was quite dramatically impacted by the virus and associated restrictions, impacts which may have understandably influenced perceptions around the longer-term commercial prospects within these markets.

HOST COMMUNITIES VS REFUGEE SETTLEMENTS

The integration of the host and refugee markets under the grants project was not only in response to their actual administrative and functional integration, but also to benefit from the larger market that results. But what, if any, were the differences the grantees experienced between the two market communities? For BL, the challenge in the refugee markets was to combat the overarching expectations around “hand-outs” (the aid versus development tension) and the unpredictable character of household income, which stood out in contrast to host community markets. SN shared these experiences around “the mindset of receiving free stuff,” which SN felt was present but not gravely pervasive. SN centered its real concern on the manner in which shelters were constructed and materials used, which were not always compatible with the large, roof-mounted solar systems. In many instances, the tarpaulin roofs were too weak to carry the modules. While FI observed significant potential in both host communities and refugee settlements, FI did feel that host communities were more similar to the rest of Uganda and, therefore, easier to work in. However, the demand for solar is strong in refugee settlements; it is simply an issue of hiring the right sales force.

Recommended Best Practice

While grantees observed certain differences between the two market communities, this difference was often linked to attitudes (e.g., experience with hand-outs/aid and attitudes toward working on a commission basis) rather than absolute market demand. From a demand point of view, the grantees generally felt that refugee markets offered considerable potential, the realization of which would require some adjustments to business models and greater awareness of how PAYGO solutions work. To some extent, the integration of the two markets moderates the impact of the peculiarities of the refugee markets. One of the market positives is the refugees received monthly payments for subsistence (not just goods but humanitarian cash transfers), which resulted in consistent income and could be followed up by sales/credit agents. However, the extent/value of this income was not always clear.

IS THERE A DISTINCT CUSTOMER PROFILE THAT HAS EMERGED OVER THE GRANT IMPLEMENTATION PERIOD?

In designing the grant project, there were questions about the specific customer profile that might exist within the refugee and host community market. Are there any specific socioeconomic features, characteristics, and consistencies within the expanding customer portfolios that may represent a distinct sub-market within the communities? If so, how could these insights be leveraged for more effective marketing and customer recruitment? BL did not detect any such distinct sub-market; instead, the company found that its customer portfolio was cross cutting and “is a basic system that appeals to a mixed

market.” Given SN’s larger SHS products, it readily acknowledged that it does not “target the Base of the Pyramid,” but rather the middle socioeconomic brackets. Even so, SN’s customer portfolio is fairly diverse, appealing to a range of end uses and end users (a number of different types of small business, as well as households of different socioeconomic status). However, SN did note that most of its household customers chose the smaller system sizes (50–100 Wp), while small and medium-sized enterprises generally chose larger systems (100 Wp+). FI found it difficult to determine customer profiles, as incomes and economic activities are difficult to determine, particularly among the refugee communities.

Recommended Best Practice

While there will be some obvious threshold consistency among the customer portfolios (i.e., one has to be able to afford the system), the smaller PAYGO products appeared to attract a fairly mixed market. While the larger SHSs would obviously be affordable to a smaller market segment, there were no glaring consistencies to enable shaping a distinct market segment as such. These observations tend to suggest that broader marketing strategies (as opposed to targeted ones) are probably more sensible at the early stages of market development and customer recruitment.

CREDIT CHECKS AND KYC PROCESSES

Refugees often lack reliable or steady sources of income, in most cases are not Ugandan citizens with national identity documents and are entitled to move between the settlements and their home countries. Grantees expressed some concern about applying their standard “know your customer” protocols. BL’s standard process for administering a KYC assessment requires that customers have a national identification (ID) document. In the case of the refugee markets, BL accepted refugee identities and adjusted its database to accommodate this. When refugee IDs were not available, BL accepted a letter issued by the OPM as an interim confirmation of identity. However, BL’s key client risk management strategy was to require that a significant deposit be paid before entering into the contract. BL further noted that the “down payment was the only effective tool to determine ability to pay.”

FI was in a similar position with its customer database and application process with respect to requiring a national ID. As with BL, FI modified its database to accept a refugee ID and then applied its standard process to vet potential customers. FI felt that “from a risk point of view, the refugee settlements were similar to other areas of its portfolio.”

SN developed a special field in its database to accommodate the refugee IDs, which took some adjustment because the “credit team had been trained not to accept anything less” than a national ID document. However, SN was reassured that all refugees “are registered with a central office.” Despite this, SN felt that “the company took on more risk,” but the extra attention invested in these customers, combined with the emphasis on “relationships rather than transactions,” reduced the overall risks and “ensured better payments.”

Recommended Best Practice

Ugandan refugee settlements are well regulated and managed and most (if not all) refugees have official ID documents. While some adjustments were required to accommodate new forms of ID on the grantees’ respective customer databases, this did not appear to translate into significant extra risk. Based on its experiences within the grant project, BL introduced higher deposits to ensure customer ability to pay.

However, the true level of risk and the effectiveness of the grantee's ability to mitigate this risk can only be answered by levels of repayments and associated credit issues (addressed below).

CREDIT ISSUES AND LEVELS OF REPAYMENT

The grantees had mixed experiences with credit management and repayment. BL experienced credit repayment levels in Kiryandongo as “the worst in the organization,” which deteriorated from 60% levels of repayment before the COVID-19-induced lockdown to 39% three months later. Interestingly, the refugee customers proved to be better payers than their host community counterparts and have remained in line with the rest of BL's portfolio. While clearly COVID-19 and the government's response impacted the customers' ability to pay, BL cited other non-COVID-19-related explanations, such as the seasonal nature of income derived from agriculture, suggesting that expecting even payments with an intermittent income profile creates its own challenges. Importantly, there were other non-financial factors that impeded consistent payment, including frequent device damage by rodents chewing through the wires, customers not always able to find mobile money agents (low penetration), and poor mobile phone network coverage impeding receiving credit codes. BL implemented several remedial measures to encourage timely payment, such as customer promotions, frequent credit/meter reminders (calls/text messages), technical trouble shooting, and device swaps (within warranty). However, BL's possible success based on these interventions was certainly undermined by COVID-19 and associated impacts.

FI experienced the same credit issues that BL experienced. FI did note “persistent network problems,” but learned to work with these challenges. FI managed the refugee/host community portfolio “like any other portfolio” and made no concessions regarding repayment and credit. While FI noted that the early indications of repayment were positive, the grantee cautioned that “it does take a while to build up a real picture of the true repayment landscape in a new area.” FI appears quite certain that “the refugee/host markets is not an inherently worse place to sell” when compared to other, more conventional markets.

While SN applied the same overall credit/repayment expectations on these markets as it does with the rest of Uganda, the company did acknowledge that it had to be “more sensitive about managing refugee credit status,” and tagged refugee status in its system to alert credit officers. An interesting adjustment SN made was shifting customer engagement responsibilities around credit issues from credit officers to sales officers, leveraging off personal relationships between sales agents and customers, as opposed to the administrative relations between credit officers and customers.

Recommended Best Practice

It is important to note that non-payment was not simply a product of income stability or prioritization, infrastructure on various levels appeared to play a role as well. In certain instances, the lack of mobile money penetration appeared to have impacted customers' willingness (ability) to pay, while network issues may have frustrated their ability to pay even further. “Rogue” sales agents willing to sell to anyone regardless of ability to pay will obviously impact credit performance. Rat infestations can be managed (as BL did) by greasing the wires. Uneven incomes (linked to agriculture) might be addressed by encouraging larger, less-frequent payments, as opposed to consistent payments over time. There are a number of short-term to medium-term measures that might enhance customer repayment levels without having unrealistic expectations about overall income improvements within refugee settlements.

PRODUCTIVE USE OF ENERGY

While the somewhat smaller PAYGO systems cannot support many productive-use activities because of the limited output, it is worth briefly exploring the productive use impacts and applications. For BL, the majority of households (90%) use the system strictly for domestic purposes with no commercial or income applications. The exceptions are households that charge other people to charge their phones. However, there is an interesting alternative to the productive impacts these systems can have. BL noted that “a broader perspective on productive use needs to be embraced,” including customers using the radio to access weather reports and crop prices to maximize agricultural opportunities as well as to spend more time in the field, knowing their homes are safely lit.

FI’s smaller system is not easily disposed to (or bought for the purpose of) a range of productive-use applications, although there is some level of “sharing of lights,” which reduced the costs of the product for the customer.

SN’s larger SHSs are more readily disposed toward a range of productive-use applications. Business or commercial applications included barber shops, small-scale cinemas, bars, cold-drink refrigeration, and irrigation. Interestingly, SN observed that customers that used their SHS for business purposes (mostly in Kiryandongo) were more consistent payers (less credit and non-payment issues) than customers who used their systems for non-commercial, domestic applications (mostly in Rwamwanja).

Recommended Best Practice

While there are productive-use opportunities that PAYGO service providers may target, many of the suitably sized systems (in terms of affordability) do not lend themselves to commercially productive applications. However, for PAYGO companies offering larger systems (like SN), there does appear to be a useful level of demand for electricity by a range of SMEs. BL’s observation regarding enabling access to farming-related information via radio as well as extending time in the fields is certainly an interesting interpretation of potential productive-use impacts.

MARKETING STRATEGIES

Given the potentially different character and composition of refugee markets, grantees examined different marketing strategies and compared them to strategies used in other markets. BL’s marketing approach was “pretty much standard,” although the company felt it was less effective in this context. While a range of marketing activities and strategies were undertaken, including radio advertisements, radio talk show interviews, market activations, store-front launches, sub-agent name boards, and customer care clinics, the most effective were the radio spots. Some challenges the grantees noted included the unreliability of radio stations, the unresponsiveness of the market to pre-publicized events, and curfew issues associated with evening and night-time activities. Based on these experiences and insights, BL recommended the “use of push distribution (reaching out to the customers), radio talk shows, and opening up a sub-agent network of locals to create confidence in the population.”

FI used standard marketing strategies within the host communities and they were effective; activities within the refugee settlements required some adjustment. FI used the grant funds effectively to hold multiple marketing events in the same place, hire more vehicles to expand the company’s marketing reach, and rely to a greater extent on radio. Important advice on marketing included ongoing customer education (particularly around finance and ‘hand-out’ expectations), use of radio advertisements and radio talk

shows, and working with established organizations (such as OPM) that can make introductions to communities. Strategies and approaches to avoid included entering communities without being accompanied by local community leaders and handing out gifts, such as t-shirts, “as they will attract impulse buyers” who generally have lower repayment rates.

SN found that network selling was easier within refugee settlements as the communities were closer knit, offering a good referral basis. The marketing activities considered most successful were radio advertisements and product demonstrations. SN further acknowledged the value of the ambassador program, and cautioned against print materials like flyers that “end up being discarded without a traceable impact.”

Recommended Best Practice

Grantees adjusted their marketing strategy to address the needs of the refugee settlements. The most successful marketing strategy appeared to be radio advertisements and talk shows as well as the ambassador program and sub-agent networks. Grantees also cited working closely with established organizations as a successful marketing strategy.

ADJUSTING THE BUSINESS STRATEGY

Grantees made changes, adjustments, and tweaks to their business strategies, particularly in the context of refugee markets. BL made adjustments to account for the remoteness of the refugee populations, requiring more travel and the use of more motorbikes to make the market more accessible. In terms of sales agent recruitment, while BL was successful in the host communities, the company did find it difficult to recruit and retain staff within the refugee settlements. Market activations were less effective in the refugee settlements than in other communities, resulting in greater reliance on radio as a marketing medium. BL’s usual reliance on sales agents frequently engaging with customers in arrears drew some hostility at times and was switched for more remote and/or softer engagement options. The hostility was also a matter of familiarity and brand trust. In a market with little previous experience of and exposure to solar and longer-term finance/loans, even BL’s association with the prominent Finca brand did not make a positive impact. Therefore, BL worked with local organizations (such as UNHRC, Danish Refugee Council, and OPM) to benefit from the market familiarity these entities enjoy, BL changed its sales commission structure by integrating the sales and installation tasks ensuring the agents received both the sales and installation fee.

FI’s existing strategy of linking commissions of sales agents to ongoing customer payments was well suited to this new market environment. For the first four months after a successful sale, the agents received commission based on customer repayments (as opposed to just the initial sale).

SN adjusted its performance management expectations of sales agents recruited from refugee settlements and some of its more standard marketing strategies.

Despite these adjustments, all the grantees insisted that they retain contractual expectations around credit repayments and did not subsidize the costs of the system. As SN noted, “It needed to prove that the concept worked.”

Recommended Best Practice

All of the grantees' business adjustments were minor: a shift in primary marketing mediums, adjustments to the incentive structure for sales agents, and relying more on strategic local partnerships. Such adjustments are to be expected from PAYGO companies, which need to demonstrate some level of agility and flexibility as they expand their businesses into new markets.

GRANT PROGRAM DESIGN

While all grants programs have their objectives, they need to be effectively designed to achieve these objectives. This section looks more closely at various design aspects of the grant as experienced by the grantees.

INTEREST IN THE GRANT?

In designing the grant, it was important that it appealed to established PAYGO companies within the Ugandan and regional markets. The grantees were asked what motivated their interest in the grant. BL regards itself “as a mission-driven organization” that, while having commercial interest, wants to see PAYGO as a “catalyst for development.” The grant represented an opportunity to access an “under-privileged market” that the company would not have otherwise reached. BL had not considered entering refugee markets, as it lacked basic information about these markets, including information about the socioeconomic status and access requirements. The grant was effective in making this possible.

FI had always been interested in working with refugee settlements and is a member of the Smart Communities Coalition. The most powerful deterrent to entering these markets was “the unknowns, how things worked, levels of income, and levels of mobility.” The grant addressed these issues and nurtured the company's interest.

SN had attempted to sell SHS's in refugee markets but were put off by “barriers such as remoteness, legal issues relating to access, and possible credit issues.” The company believed that the grant would address these concerns and facilitate entry into this market “without too many adjustments to its business strategy.”

WAS THE GRANT EFFECTIVE IN DE-RISKING THE OPPORTUNITY?

Grantees were consistent in their belief that the grant was suitably designed to address the risks and concerns they had about operating in refugee settlements. BL believed that it is a constant battle between reaching the BoP and turning a profit, and the grant was effective in resolving some of these tensions. The funds provided for setting up the branch, hiring agents, and running marketing campaigns. The grant effectively addressed the uncertainty BL had with regard to the refugee markets.

FI believed that the grant assisted in many ways, including facilitating access to the refugee settlement, providing support for operations, enabling communication with other grantees, and being helpful in terms of “understanding the lay of the land.” While interested in testing the refugee market, FI could not commit the funds to establish a service center, recruit and train agents, or transport staff and products when there was so much uncertainty about the viability of these markets. The grant went a long way in addressing these issues.

SN felt that the grant was “more effective than expected,” as it addressed all the legal concerns about accessing the markets and provided access to funds that “bridged the costs of accessing the markets.”

WAS THE GRANT EFFECTIVELY STRUCTURED?

BL believed that while the implementation timeframes were tough, it was “aggressive from the start” and pushed the company to perform. The 12-month pilot would have been acceptable but for the impact of COVID-19. FI considered the grant values and reporting requirements to be reasonable, holding the company “to account,” and that ongoing communications required by the grant “improved its understanding of the environment.” FI would have liked to have seen greater flexibility and clarity on permissible budget adjustments. The grant was at times a little too inflexible, preventing the grantee from adjusting to learnings/challenges on the ground. Both FI and SN felt that the grant implementation period was too short.

WOULD THE GRANTEE PROPOSE ANY ADJUSTMENTS TO THE GRANT THAT MAY IMPROVE IMPACT?

While FI did not propose any adjustments other than more clarity around budget flexibility, as mentioned above, BL raised the option of including a more “results-based financing approach.” SN, which sells larger systems, suggested that future grants distinguish goals related to system sizes (for instance kWp) as opposed to number of sales.

APPLICABILITY TO OTHER SITUATIONS

While refugee settlements share similar characteristics because they share the same purpose, there are some reasonably distinct features about refugee settlements in Uganda that need to be taken into account when generalizing the experiences described in this report. Uganda is the largest refugee host country in Africa, adopting an “open-door” policy to accepting refugees from the region. The Government of Uganda has integrated refugee issues into national planning considerations and allows refugees freedom of movement as well as the right to education, employment, and healthcare. Refugees are granted a refugee ID document, which gives them access to these services. The government also allocated each refugee family a plot of land for small-scale agriculture as well as shelter. There is a very clear emphasis on “economic self-reliance” for refugees in Uganda that is not necessarily emphasized in other national refugee policies in the region.

SUCCESS STORIES

ROUND TABLE WITH USADF GRANTEES: LESSONS LEARNED AND STRATEGIC PARTNERSHIPS

Citing an opportunity for a broader collaboration to amplify impact, the GPTech team went beyond the original scope of the project by arranging a round table discussion between the three grantee SHS companies and four grant recipient companies under a USADF program, also serving rural energy needs in Ugandan refugee settlements. The grantees held two quarterly meetings, with the first one on August 30, 2019 (the third meeting was cancelled due to COVID-19 concerns). The objectives of the meetings were for grantees to share lessons learned and to explore strategic collaborations.

The USADF program, known as the “SCC Pay-As-You-Go Off-Grid Energy Challenge,” aimed to bring affordable and renewable energy to rural communities and promote youth entrepreneurship through small grants to African-owned enterprises (including refugee-owned). The grantees under this program are as follows:

- AGA Great Works, working in the Bidi refugee settlement in northwest Uganda, is using its grant to support a solar mini-grid;
- The Raising Gadho Foundation, also operating in Bidi Bidi, is using its grant to support its clean cooking solution;
- Power Trust Uganda, operating in Kiryandongo, is using its grant to support its stand-alone business hubs; and
- Solar Today, operating in Rwamwanja, is using its grant support its SHS for businesses.

At the first round table of grantees, the discussion identified the common lessons learned and partnership opportunities, centered around refugee recruitment and retention, suitable identification for refugee customers, and the benefits to partnering with other SHS providers when advocating or seeking assistance from regulators.

In addition to identifying common challenges and exploring solutions, the other significant advantage of this round table gathering was that grantees had the space to build familiarity and relationships with one another, which lends to smoother cooperation once back in the host communities and settlements, where they otherwise would have little interaction. As evidence to this increased spirit of cooperation, the grantees planned to set up a WhatsApp group to facilitate communication.

USAID GRANTEE BRIGHTLIFE EXCEEDS MONTHLY SALES TARGET TWO-FOLD

During September 2019, BrightLife exceeded its monthly sales goal of 75 SHSs two-fold, selling 159 SHSs. While this may seem minor given its 12-month project goal of selling 1,750 SHSs, it is commendable given the grantee only began operations in Kiryandongo in June of 2019. BrightLife does not attribute this success to any one factor, but rather to a comprehensive and quality start-up operation that executed tasks across the board on time and to a high standard. This included recruitment, training, marketing, customer service, strategic partnerships, and quality products with few customer complaints. In BrightLife’s recruitment, for example, it successfully hired Peter Mugwanya, a former head of national sales

and regional manager for a competitor. In addition, Mr. Mugwanya had experience in the Kiryandongo area, which afforded him familiarity with the customers, economics, and stakeholders of the region. In another example, BrightLife was effective at building its brand early on, holding launch events where local leaders gave speeches, helped draw crowds, and endorse products, and hosting an awareness-building event that drew 62 local leaders.

RAPID GRANTS PROGRAM DESIGN, LAUNCH, AND SELECTION

The Grants Program moved from initiation and design, to launch and grantee selection in a relatively trouble-free and expeditious manner. GPTech believes the following factors accounted for that success.

- **EXPERIENCE** GPTech’s partner, Energy 4 Impact, had previous involvement in supporting SHS companies in refugee settlements in Kenya under the Moving Energy Initiative. Energy 4 Impact was directly involved in supporting BBOX, a PAYGO SHS company well established in East Africa, in supplying SHSs in the Kakuma refugee camp in northwest Kenya. This kind of experience proved invaluable in terms of understanding the opportunities and challenges presented by the refugee markets and designing a grant program that was responsive to these socioeconomic and political realities, effectively providing “de-risked” entry into refugee markets by private-sector SHS companies. The GPTech team also engaged with the non-profit international development organization SNV, who is recently involved with energy access within refugee markets.
- **MARKET INFORMATION** Such information is critical for the SHS companies as well as for the design of the Grants Program. The SCC’s refugee settlement profiles of both Rwamwanja and Kiryandongo were very useful, as was the information available on the Uganda Refugee Response Portal and the information researched and gathered by the GPTech team, all of which were made available to interested PAYGO SHS companies through an “information pack.” A greater understanding of and insights into refugee markets enabled SHS companies to develop sustainable strategies for serving the settlements, as well as fulfilling the commercial requirements of the Grants Program.
- **MARKET INTELLIGENCE** The GPTech team engaged extensively with the Ugandan national and regional SHS market, holding meetings with SHS companies and representative associations. GPTech understood the market, both countrywide and in the western Uganda region in particular, the level of interest, concerns, strengths, and weaknesses, all of which facilitated the design of a Grants Program to address these realities.
- **ENABLING ENVIRONMENT** While understanding the refugee markets and the SHS companies that can serve these markets is critical, so is understanding the institutional framework and players that can both support and/or frustrate the implementation of the Grants Program. The GPTech team made a point of understanding and engaging with all the prominent and mandated organizations within this space, including the Office of the Prime Minister, the UNHCR, all the donors, active charitable organizations, those involved in training and support functions, and others. The team used these engagements to better understand the “playing field” and thus understand which organization is prominent in specific activities and how, if necessary, such organization might assist both GPTech and the grantees.

ANNEX A – INFOGRAPHIC OF LESSONS LEARNED



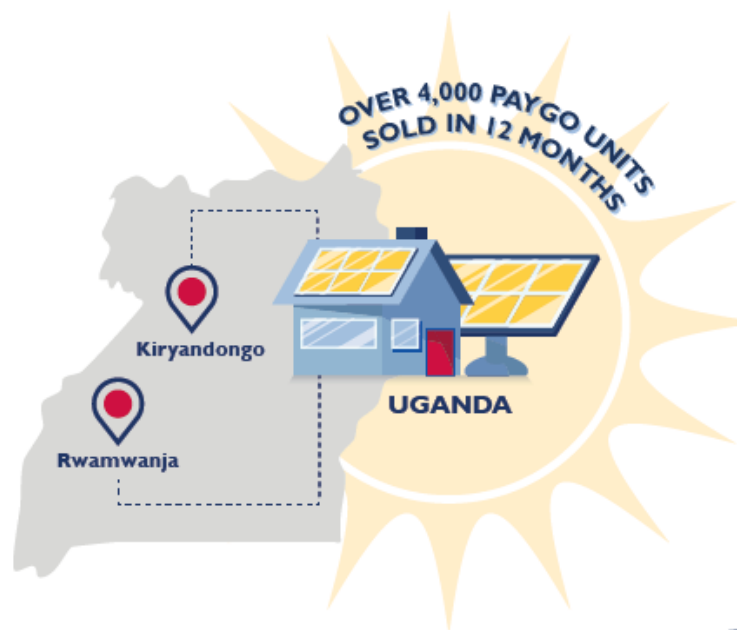
ADVANCING ENERGY ACCESS IN REFUGEE SETTLEMENTS

Key Lessons Learned from Three Pay-As-You-Go
Solar Home Systems Providers in Uganda

Updated July 24, 2020

USAID Power Africa's *De-Risking Pay-As-You-Go Solar Home Systems* in the Uganda Refugee Settlement project is aimed to accelerate off-grid investment and energy access by incentivizing private sector Pay-As-You-Go (PAYGO) Solar Home System (SHS) companies to enter Kiryandongo and Rwamwanja refugee settlements and host communities.

From June 2019 to May 2020, three experienced companies established new operations in and around the settlements, adapted business models to local context, and sold over 4,000 units. This document captures the key lessons learned while entering the refugee market.



This project showcases Power Africa's contributions to the Smart Communities Coalition (SCC). As an SCC co-chair with Mastercard, USAID and the over 30 SCC members are improving the delivery of essential services to refugees and host communities through enhanced coordination between public and private entities and the strategic introduction of technology. SCC operates under three foundational pillars — connectivity, digital tools, and energy access.



PROGRAM IMPLEMENTATION AND IMPACTS

The objectives of this grants program were to further innovation and reduce the knowledge, product, financial, and risk barriers to serving refugee communities.



Repayment rates among refugees were in line with rates SHS companies observed in their wider portfolios. However, another year of results is required to assess refugee repayment rates with high confidence.

KEY LESSONS LEARNED

Ease of doing business



Market Profile



THE PRESENCE OF A COMMERCIAL MARKET

Experience: Potential for a sustainable market in both communities

Key lesson: Refugees rely on humanitarian stipends and lack experience with long-term credit

HOST COMMUNITIES VS. REFUGEE MARKETS

Key lesson: Refugee markets slightly inexperienced with long-term credit purchases

Experience: High level of integration between the markets, both offer commercial potential



DISTINCT CUSTOMER PROFILES

Experience: Smaller PAYGO systems appeal to a mixed market; larger systems to more defined market

Key lesson: Larger, more tailored systems appeal to a more defined income segment

CREDIT CHECKS AND KNOW-YOUR-CUSTOMER PHILOSOPHY

Key lesson: Grantees modified customer databases to accommodate refugee IDs

Experience: Refugees' lack of national ID documents stymied standard credit check process



CREDIT PERFORMANCE AND REPAYMENT LEVELS

Experience: Two companies' repayment rates were consistent with general portfolio

Key lesson: Repayment was impacted by poor payment infrastructure (e.g. mobile money, telecoms)

Key lesson: Smaller systems enhance communications for agricultural information (e.g. via phones, radios)

PRODUCTIVE USE OF ENERGY

Experience: Larger systems linked to productive activities (e.g. refrigeration, barbers, cinemas)



MARKETING STRATEGIES

Experience: All grantees made only slight adjustments to marketing strategies in refugee markets

Key lesson: Greater reliance on radio, customer ambassadors, and constant education

ADJUSTING BUSINESS STRATEGIES

Key lesson: A level of agility is expected from PAYGO companies entering new markets

Experience: Minor adjustments around marketing mediums, incentive structures, local partnerships



Grant Program Design



MOTIVATION OF GRANTEES FOR PARTICIPATION

Experience: High grantee interest but wary of too many unknowns
Key lesson: Grant design must directly address expressed uncertainties



GRANT'S EFFECTIVENESS IN DE-RISKING THE OPPORTUNITY

Experience: Effective in resolving the tensions between servicing Base of the Pyramid (BoP) markets and being sustainable
Key lesson: Addressed the legal, informational, and cost uncertainties of the market



THE EFFECTIVE STRUCTURING OF THE GRANT

Experience: The short implementation period was considered 'motivating'
Key lesson: COVID-19 notwithstanding, short implementation period impacted ability to achieve targets



ANY ADJUSTMENTS TO THE GRANT GOING FORWARD?

Experience: Grantees considered current design to be effective in achieving program objectives, although concerns about short implementation period noted
Key lesson: A grantee suggested a more 'results-based financing' approach for financial accountability while some suggested longer implementation periods



APPLICABILITY TO OTHER SITUATIONS

Experience: Refugee settlements share broadly similar characteristics, suggesting universal applicability
Key lesson: Factor in Uganda's modern 'open-door,' rights-based refugee policy



Interested in more?

Please contact Lovemore Seveni, Off-Grid Energy Specialist, USAID/Power Africa (lseveni@usaid.gov). Also, for the full project report, including a detailed chapter on lessons learned and recommended best practices, please download a copy from the Development Experience Clearinghouse (dec.usaid.gov).

Implementing Partners

