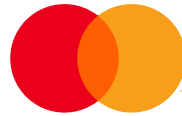




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Assessment of Market-Driven Solutions for **Energy Access in Refugee Settlements in Sub-Saharan Africa**

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1 Introduction

While significant progress has been made over the last few decades to increase electricity access globally, in 2019, 771 million people still lacked access to this essential service¹. Many within that group are refugees and displaced persons, of whom approximately 80% have little or no access to electricity services². Low electricity access has been shown to contribute to higher crime rates, lower levels of education, reduced income, adverse health outcomes, and increased fire safety hazards. However, connecting refugees to electricity grids can be expensive and politically difficult as most camps and settlements are typically located in remote and sparsely populated areas. In recent years, various humanitarian organizations, non-governmental organizations, and public and private sector bodies have focused their efforts on finding solutions to address this widespread and urgent problem.

This report aims to assess past and existing interventions that target the provision or increase of electricity access in refugee camps and settlements. The time frame of projects observed is from 2017 to date. While some humanitarian organizations have directly provided free products and services to displaced people in order to improve their access to energy, the short-term and charitable nature of these capital injections often fails to provide the same degree of sustainability or infrastructure development that market-based solutions can offer. This white paper therefore focuses on market-based interventions, including humanitarian/development organizations that opt to partner with private energy service supply companies and developers to advance a sustainable market for clean, accessible energy products and services within camps, settlements and host communities.

These interventions, while increasing energy access, may also promote local employment, business growth opportunities, and skills and knowledge transfer through employee training. Typically, these efforts are targeted towards a range of products and services, such as

mini-grids, solar home systems (SHS), solar appliances, and clean cooking, but the assessment will primarily focus on projects providing SHS, appliances or other solar applications, some of which have a clean cooking component.

This report summarizes findings from 13 projects that target increasing energy access in refugee camps and settlements in sub-Saharan Africa, achieved through partnerships between humanitarian organizations and public or private sector suppliers³. The interventions chosen are all in the solar home systems sector in order to allow for a degree of cross-comparison. The study attempted to include all projects of this type with publicly-available information, and they represent a diverse range of geographical locations, types of intervention deployed, duration of interventions and enabling environments. A two-pronged approach has been used for the analysis with extensive literature review and interviews with project sponsors and industry experts⁴. The analysis divides these projects based upon the type of intervention being deployed⁵, and further assesses and makes recommendations for the application of different interventions. The recommendations are based on the best practices and lessons learned from individual projects, existing literature, and the perspectives of project parties.

This white paper is a consolidated version of the final report produced by a team of graduate student Columbia University School of International and Public Affairs for the Smart Communities Coalition, available [here](#).

The Smart Communities Coalition seeks to improve the delivery of essential services to forcibly displaced individuals and host community members through enhanced coordination between public and private entities and strategic implementation of technology. SCC efforts will focus on three foundational pillars — energy, connectivity and digital tools. Learn more [here](#).

1. IEA. (2020, October). SDG7: Data and Projections. Retrieved from IEA: <https://www.iea.org/reports/sdg7-data-and-projections/access-to-electricity>
2. Shell. (2020). Access to more: creating energy choices for refugees. Shell, Dalberg and Vivid Economics. Retrieved from Shell.

3. Refer to Appendix A for projects analyzed
4. Refer to Appendix C for detailed project analysis
5. Refer to Appendix B for mapping/grouping of the 12 projects

2 Project Groupings

Projects have been classified into three categories based on the type of funding provided and the strategy of the intervention - direct grant financing to suppliers, market development activities and technical assistance, and demand-side interventions. They have been further cross-classified into productive, consumptive, and public use based on the type of systems being promoted. In the following sections, each of the categories is defined and illustrated through a project that serves as a model for the type of intervention.

2.1. Direct supplier grant financing interventions refer to direct funding provided by humanitarian or public sector organizations to suppliers in order to set up last mile distribution and operations, purchase inventory, or establish systems. The projects identified in this category focus on setup of operations, rather than directly reducing the product prices for consumers, though there are generally expected to be indirect price benefits from reducing the initial installation costs.

The main objective of this project was to encourage private PAYGO SHS companies to consider refugee communities as a viable market. Three grant awards totaling to \$460,000 were awarded to PAYGO SHS companies BrightLife, Fenix International, and SolarNow (SN) to stimulate initial market activity and increase participation in the refugee settlements and host communities. Specific de-risking activities included subsidizing the establishment of sales offices, travel and recruitment of staff, and gaining access to the settlements and partnerships. The grant awardees were able to establish infrastructure and operating systems in order to conduct sales at physical centers; marketing, recruitment, and training programs; and customer service operations. The end-user product prices were not subsidized. All three grantees are continuing sales, and all three companies plan to continue after sales services in the refugee settlements. Two of the three grantees have seen “acceptable” repayment rates while one is looking to scale back to cash-only operations.

PROJECT HIGHLIGHT: De-Risking Pay-As-You-Go (PAYGO) Solar Home Systems in Uganda Refugee Settlements Project⁶

Use type:

Consumptive, Productive

Timeline:

October 2018 to
August 2020

Settlement:

Kiryandongo and Rwamwanja

Country:

Uganda

Implementing Agency:

Smart Communities Coalition/
USAID Power Africa, Green
Powered Technology and Energy
4 Impact

Funding:

\$460,000 by USAID

SHS units sold:

4,137

WHAT WORKED?

- Potential for a sustainable market in both communities
- Engagement with local leaders to enhance access to settlements
- Collaboration with local Non-governmental organizations (NGOs) and training centers to recruit local talent
- Integration of the host and refugee markets
- Customers who were using SHS for business purposes emerged as more consistent payers
- Mix of various marketing strategies including use of radio for sales and to attract new customers, multiple market ‘activation’ events per week, door-to-door sales and customer referrals
- Early repayment rates were considered favorable

CHALLENGES

- Lack of points of service infrastructure in refugee settlements, which may be tackled by exploring satellite presence
- Language barriers in recruitment and training
- Wage inflation in the region due to presence of humanitarian organizations requires formulation of more attractive payment or incentive structures
- Lack of mobile money penetration impedes repayment
- Identification issues and lack of data made assessing credit history difficult.

6. Source(s): Based on Final Report on “De-Risking Pay-As-You-Go Solar Home Systems in Uganda Refugee Settlements Project” prepared in July 2020 by Green Powered Technology

2.2. Market development activities and technical assistance

leverage the public or humanitarian sectors' experience working in refugee or similar humanitarian settings and may consist of a combination of marketing and awareness campaigns, employee training, technical assistance, or mediation between suppliers and government or other humanitarian organizations, among others.

The project sought to create market demand for stoves, fuels, SHS, and solar lighting products by connecting refugee and host communities with private sector companies. Specifically, the project aimed to increase the use of improved cookstoves and alternative fuels such as ethanol and enhance last mile distribution of solar energy products. Technical assistance and broader market development were deployed, and project activities included carrying out awareness campaigns, supply chain development, setting up of linkages with local traders, and training local residents on cookstoves production. The Project also explored product affordability for both community members and refugees through innovative financing models such as upfront and PAYGO methods using both cash and mobile money (M-PESA/Airtel money) as payment modes.

PROJECT HIGHLIGHT: Market Based Energy Access (MBEA) I Project ⁷

Use type:
Consumptive
Timeline:
2017 to 2019
Settlement:
Kakuma and Kalobeyei
Country:
Kenya;
Implementing Agency:
SNV under EnDev
Funding Agency:
EnDev
SHS units sold:
4,322

WHAT WORKED?

- Local presence and strong network with different parties in the camps including community leaders and public and private sector organizations
- Use of local capacity for awareness campaigns, community engagement, and regular soliciting of feedback from end-users and distributors
- Awareness campaigns had a positive effect on purchases, especially in middle and high-income groups
- Solar suppliers were quick to engage in the market
- Decentralizing operating and maintenance processes improved customer service.

CHALLENGES

- Behavioral change resistance from refugees towards paying for energy services
- Awareness campaigns were not as effective with lower income residents who have lower purchasing power, and they continue to rely on UNHCR
- Insufficient product availability for SHS and solar appliances, as local sellers are not able to pay upfront costs for stock
- Logistical challenges due to the remote location of the camp
- While people were aware of and willing to use the mobile money platform, refugee IDs only allow for registration and use the platform for three months at a time, resulting in difficulties tracking customers and high risk of default on payments.

7. Source(s): Based on the reports "Promoting Market Based Energy Access for Cooking and Lighting in Kakuma Refugee Camp published in July 2020 by Deutsche Gesellschaft für Energising Development Internationale Zusammenarbeit (GIZ) GmbH and SNV Netherlands Development

Organisation, and "Humanitarian Energy: Energy for micro-enterprises in displacement settings" published in December 2020 by Energising Development.

2.3. Demand-side interventions seek to increase the affordability of consumer products through customer-side interventions. These may take the form of direct subsidies either by providing funds to suppliers to specifically reduce product prices or directly improving customers' and businesses' access to financing.

Market-based interventions were employed to enhance long-term investments in BidiBidi, ensuring access to high-quality, reliable, and clean energy products. Mercy Corps partnered with two private solar energy providers—Village Power and d.light—to implement the AMPERE pilot project. Village Power and d.light were tasked with managing all sales operations in the settlement. The funding was used to provide a 60% (and subsequently 50%) subsidy for clients buying Village Power and d.light's products through a results-based financing (RBF) mechanism.

The project sought to test how market systems can be strengthened by targeting the constraint of appropriate finance, i.e., interventions targeted towards creating more flexible financing options to accommodate inconsistent income streams in order to increase ability to pay for solar products and reduce credit risk to Off-Grid Solar (OGS) suppliers. Phase I focused on small lanterns and SHS; paid through upfront cash payment or PAYGO. The subsidy aimed to prove that consumers are able to repay loans at a certain monthly price. Repayment rates by refugees were found to be similar to the ones experienced in the host community across companies' portfolio. As such, the two OGS suppliers involved in the pilot expressed the intention to remain in the area to continue assessing market demand.

In summary, open communication between various stakeholders, information sharing on best practices and lessons learned, data repositories, and common key performance indicators for the industry will be highly beneficial to building a sustainable market system going forward.

PROJECT HIGHLIGHT: **Accessing Markets through Private Enterprises for Refugees' Energy access (AMPERE)⁸**

Use type:

Consumptive, Productive

Timeline:

July 2019 to July 2020

Settlement:

BidiBidi

Country:

Uganda

Implementing Agency: Mercy Corps Netherlands (Mercy Corps), in partnership with SNV and Response Innovation Lab (hosted at Save the Children)

Funding Agency:

Netherlands Enterprise Agency (RVO) under the AME (Access to Modern Energy) partnership with the Dutch Coalition for Humanitarian Innovation (DCHI)

SHS units sold:

3,918

8. Source(s): Based on reports "Paying for darkness: Strengthening Solar Markets for refugees in Uganda" published in 2019 by Mercy Corps, "One Year on: Paying for darkness: Strengthening Solar Markets for refugees in Uganda" published in Jan 2021 by Mercy Corps, and

"Assessing the scalability of the Pay-As-You-Go model in refugee settlements" published in May 2020 by students at Columbia SIPA

WHAT WORKED?

- Emphasis on cash payment options, and cheap and portable products increased the sales
- Detailed consumer segmentation in the area allowed the sector to determine the needs that may be met through supported local energy markets and revealed more clearly who may be excluded
- Co-designing of proposed interventions with private sector partners allow for market actors to suggest potential design iterations derived from their knowledge and experience
- Community-level market activation events such as the “Bidibidi for Solar campaign”, “Women to women activations” and “Door to door activations (during COVID restrictions)” worked to improve awareness among customers
- Product quality tests done during the demonstrations led to higher trust and product credibility
- Setting up service centers in the camps that covered warranties, customer education, and after sales services were also useful for consumer trust.
- There was high brand recognition of private companies since they were serving different consumer segments - a study showed that a vast majority of respondents would direct product issues to the OGS providers, not Mercy Corps. 40% said they would call the respective call center and 35% said they would visit the call center in person.

CHALLENGES

- Dependence on subsidy levels was observed. Once the subsidy was reduced to 50% in phase II of the project, there was a decrease in purchases. This could also be that phase II coincided with the lean income seasons.
- Penetration of mobile money is low in the Bidibidi camp, so refugees have to travel longer distances to access mobile payment points
- Seasonality of incomes in the displacement communities. The main income seasons are November and December. This means that beyond these months, the solar companies have to strategize to keep operations active in the settlements. AMPERE took this into consideration in designing the various phases of the activation events. This ensured the maximization of resources and strategies aimed at encouraging payment in lean seasons.

3

Analysis and Recommendations

For Project-implementing Agencies and Donors:

Comprehensive Market Surveys - The social, political, and economic landscape of camps and settlements can differ greatly, as well as customers' specific energy needs and attitudes toward different products. Projects should endeavor to gather as much of this contextual information as possible before structuring an intervention. Practical Action's Renewable Energy for Refugees (RE4R) project in Jordan and Rwanda, for example, uses a "total energy access (TEA)" approach that involves surveys and stakeholder assessments to determine the needs of all levels of the community (households, businesses, and community facilities) (Practical Action, 2020). The TEA assessment has yielded valuable data about household and business fuel consumption, cooking behaviors, and community-wide priorities for energy access, essential for understanding the energy system as a whole. Such an understanding can help organizations mitigate several challenges including on affordability and customer ability to pay by providing insights on pricing and payment structures.

Inter-agency collaboration and information sharing

- Collaboration between the different stakeholders - government, public, and private - working in the energy access space in humanitarian settings is critical to the success of these interventions and removal of redundancies in the implementation of projects. Platforms for engagement between the diverse group of donors and investors involved help to identify the gaps in various settings, enhance data and information sharing, and identify impact areas to be prioritized. The [Smart Communities Coalition \(SCC\)](#) and the [Global Platform for Action \(GPA\)](#) are examples of such collaborative platforms designed to share learnings and support implementation of new kinds of project approaches. A collaborative approach enhances the effectiveness of project reach while avoiding duplication in the implementation of projects.

Further, public sector or government partners offer a unique benefit to private suppliers through their experience of working with other private sector entities and/or the local communities. Platforms such as SAFE Humanitarian Working Group (SAFE Fuel and Energy, 2021) are already working toward this goal. Lastly, there is a need to implement a common language of measuring success in the interventions. The GPA is furthering this goal through its harmonizing data practices workstream (Global Platform for Action, 2020).

Use of Results-Based Financing - Results-based financing (RBF) is commonly used to link funding to pre-determined, verified results. The use of RBF is more suitable in mature market settings, particularly when applied to simpler technologies. However, RBF can stifle the development of newer or less-developed technologies and may be ineffective in locations where the upfront costs for investment for suppliers is too high to activate the market.

Based on type of intervention

Direct Supplier Financing - Direct funds given to suppliers to set up operations, purchase inventory, or build systems can stimulate market development. Depending on how they are deployed, these funds can be less risky than demand-side interventions. Reducing the initial investment costs may allow for conditions that stimulate early demand by improving availability of the services without resulting in dependence on aid or subsidy, as capital and operating expenditures often decline after setup is completed. Multiple projects have demonstrated the existence of market demand in these conditions and the expectation is that with time the projects will be able to operate in an economically viable manner. However, some companies provided with this type of financing such as BBOX in the MEI project in Kakuma, have consequently asked for more funds which raises concerns about the commercial viability of operations without future funding support and if replication of such models will have distortive effects due to continued support by external actors. (Moving Energy Initiative, 2019).

Direct Supplier Financing works well for productive uses, as these projects have associated revenue streams that support the ongoing project operations after the funding is phased out by the supplier. Market conditions for consumptive use projects do not generally support direct supplier financing for sustainable operations, particularly in case of markets with low-income refugees as market saturation may be observed after a certain point. Strong market development activities would be useful for mitigating some of the challenges, with the benefits of high-quality products being visibly demonstrated.

Supply side interventions can be particularly useful in productive and public projects as upfront capital investment is a large barrier. The MEI implemented a Solar Powered ICT and Learning Hub in Kakuma with grant funding of about \$125,500 where refugees can access a variety of digital services as well as technical, financial, and literacy training and printing, internet, and mobile charging services. A few months after the hub opened, it was noted that only 18% of the energy available was being used. However, the project's intention is to connect the hub to additional local businesses, which would generate additional income for the hub.

A different MEI project deployed a grant of approximately \$200,000 towards the capital costs for purchase and installation of solar systems at healthcare clinics run by the International Rescue Committee (IRC) in Kakuma, with the IRC paying for the electricity. In addition to resulting in significant monthly energy savings by replacing existing diesel generators, the project was able to facilitate the electrification of another clinic where the IRC intended to install another diesel generator. As of December 2018, the solar energy systems were supplying 100% of the clinics' needs and, consequently, the IRC reduced its fuel consumption at the clinics by 100% (Moving Energy Initiative, 2018). Such improvement in public infrastructure can have ripple effects.

Productive and public use projects

offer the additional benefit of

accessibility for both the host

community and refugees, which can

create improved community relations

and broaden the scope of impact.

Similar to demand-side interventions (end-user subsidies), supplier financing is unlikely to yield sustainable sales when used to artificially or temporarily lower the price of products for individual consumers if it does not result in lower prices in the long term, particularly in markets with low energy expenditure and ability to pay.

Market Development Activities - These types of interventions leverage the public sector's experience working with displaced and rural communities, other aid organizations, and local governments without necessitating a long-term financial commitment.

Awareness campaigns - Some markets, such as Kakuma and Kalobeyei where the MBEA I project pilot was implemented, have high relative energy expenditure (with firewood alone costing around 20% of per capita income) as well as high utilization of inefficient or expensive fuels such as firewood or diesel generators (SNV, 2020). In these environments, there is a demonstrated willingness to pay for fuel but often a lack of awareness and/or availability of cleaner, more efficient technologies. The MBEA I project revealed a willingness to pay for solar appliances and alternative cooking fuels even among lower-income households.

Awareness campaigns require sustained efforts of at least 6-12 months to be truly effective (SNV, 2020), as there is often a lag between the campaign reaching consumers and those consumers being able and willing to purchase services. In the AMPERE pilot project, for example, parties found that it takes 1-3 months after a campaign for the demand to materialize.

Supply chain assistance - The complexity and number of supply chain elements is unique to each project's geography, energy market maturity, and technology. Markets that are good for supply chain assistance are those where the demand can sustain operations after the initial project implementation period has elapsed.

Market development activities are successful in markets that have overall high energy expenditure or willingness to pay but lack knowledge and have limited availability of targeted products. In markets with less ability to purchase products, they should supplement subsidies or other financing to solve issues such as lack of information or trust in certain products.

Demand-Side Interventions - Despite initial success, demand-side interventions generally carry more long-term risk as they do not fundamentally alter the economic landscape or income of refugees, and therefore may result in reversion to prior spending behaviors when the program ends. Projects that utilize demand-side interventions often demonstrate success during the pilot stage and particularly in settings where there is

9. The MEI grant financed the initial solar infrastructure. IRC signed an ongoing O&M contract with the company that installed the solar system and they were paying for services themselves. UNHCR owns the solar PV system.

The clinic where the smaller solar PV system was installed was subsequently handed over from IRC to another NGO.

low-paying capacity. For example, the AMPERE pilot successfully deployed demand-side subsidies using RBF in the Bidibidi Camp in Uganda and found repayment rates to be high. However, when the subsidy was reduced, there was a reduction in purchases of products. Demand-side interventions may not yield sustainable sales with artificially or temporarily lowered prices if it does not result in lower prices in the long term. This can lead to behavioral resistance from consumers towards paid products thus hampering efforts of pure market-based function of service providers. Demand-side interventions highlight the need for livelihood development and more importantly policy change alongside energy activities. Although expensive and difficult to sustain, activities need to have a long-term funding plan and exit strategy from the outset to avoid negative consequences of withdrawing them.

Demand-side interventions are best utilized in markets with low ability to pay, as they are a useful funding application for increasing energy expenditure in areas with a high need but low use or availability of energy resources. These interventions should be paired with interventions to address market disruptions or failures outside of low ability to pay and can be used to stimulate initial demand but will not result in sustained sales on their own. Other non-subsidy interventions that can alter longer-term market conditions would stop demand from plummeting once subsidies are phased out.

For Suppliers:

Suppliers should ensure that individuals and businesses have access to finance for the upfront cost of products in order to maximize market penetration and mitigate risk of supply chain disruptions. When possible, they should work with local businesses to obtain small loans or engage in payment plans directly so as to prioritize obtaining initial product stock.

Specifically, suppliers should ensure spare parts, repair centers, and other emergency product services are available on site and decentralize their maintenance and storage operations. In more mature markets with existing penetration of renewable energy products, the suppliers' ties to the local community may have less of an impact because the products are already well known and used.

Facilitating Financing - While not generally a standalone intervention, facilitating customers' and businesses' access to finance is crucial in establishing projects and ensuring their long-term success after the pilot phase.

Individual Customers - Many projects that provide SHS attempt to utilize mobile payment methods for customers to meet their payment obligations. However, because refugees often experience issues accessing SIM cards, mobile money accounts and other digital tools, other financing options for individuals are worth considering. One option is the establishment of revolving community funds in which members of the community contribute to a pool of funds, which is then used to pay for products. Community funds can increase accountability and encourage more consistent repayment across the area. This is particularly useful in areas with a large concentration of low-earning refugees.

Alternatively, arrangements such as work exchange programs or programs that require small, highly subsidized payments from refugees can promote a sense of ownership crucial to reducing the distortive effects of a freely distributed product.

Local Businesses - A major challenge for local businesses selling products is obtaining the funds required for initial inventory, as it requires a certain amount of cash on hand (Practical Action, 2020). However, a lack of inventory can be detrimental to projects' long-term success as disruptions in the supply chain and customers' ability to efficiently obtain products and services can deter future purchases and make residents less inclined to switch from their current inefficient lighting or cooking methods. Small loans to businesses can prevent these initial constraints.

Supply Chain Development - Supply chain elements located as close to the customer base as possible can benefit less mature markets lacking initial uptake in the product. Ensuring supply chain elements such as assembly, distribution, and last-mile retailers for solar products are in place can help increase refugee perception and uptake. Employing refugees within the camp to distribute informational material contributes to overall awareness and education of a newly introduced product. Additionally, engaging refugees to sell the product as representatives for the company generates employment, increases local household income, and may decrease operational costs for the company.

Product Warranties - Suppliers should provide product warranties and after-sale services to incentivize uptake of products. Coordination and agreement of minimum product standards will encourage the deployment of lasting and sustainable products and decrease the prevalence of counterfeit or substandard products.



Appendix A: List of Projects Analyzed

1. De-Risking Pay-As-You-Go Solar Home Systems in Uganda Refugee Settlements Project
2. Moving Energy Initiative/Bboxx Pilot -Supporting a Solar Retailer to Test the Market in a Displacement Setting
3. Solar Powered ICT and Learning Hub for Kakuma
4. Renewable Energy for Refugees (RE4R)
5. Installing Solar Systems in Healthcare Clinics Run by IRC
6. Accessing Markets through Private Enterprises for Refugees' Energy access (AMPERE)
7. Access to Energy for Refugees and Host Communities II
8. Market based Energy Access (MBEA) I
9. Market based Energy Access (MBEA) II
10. Digital Agents for Energy+
11. Sustainable Use of Natural Resources and Energy in the Refugee Context in Uganda
12. Building a market system for clean energy in Burkina Faso
13. Remote-Controlled Solar Systems for Businesses in Rwamwanja Refugee Settlement

B Appendix B: Mapping of Projects

Note: Many of the projects have multiple phases and activities and thus may fall into cross-cutting categories. We decided to map this breakdown in order to show the commonalities in the impact areas and intervention mechanisms of the projects being implemented in refugee settings. For the purpose of analysis, projects have been broadly classified based on the major activities and the stage that the project is in with priority being given to the SHS elements.

Categorizations	Productive Use	Consumptive Use	Public Use
Direct Supplier Grant Financing	<ul style="list-style-type: none"> • De-Risking Pay-As-You-Go Solar Home Systems in Uganda Refugee Settlements Project • Moving Energy Initiative/Bboxx Pilot • Solar Powered ICT and Learning Hub for Kakuma • Remote-Controlled Solar Systems for Businesses in Rwamwanja Refugee Settlement 	<ul style="list-style-type: none"> • De-Risking Pay-As-You-Go Solar Home Systems in Uganda Refugee Settlements Project • Moving Energy Initiative/Bboxx Pilot 	<ul style="list-style-type: none"> • Installing Solar Systems in Healthcare Clinics Run by IRC • Solar Powered ICT and Learning Hub for Kakuma
Demand-Side Intervention	<ul style="list-style-type: none"> • Accessing Markets through Private Enterprises for Refugees' Energy access (AMPERE) • Access to Energy for Refugees and Host Communities II Renewable Energy for Refugees 	<ul style="list-style-type: none"> • Accessing Markets through Private Enterprises for Refugees' Energy access (AMPERE) • Access to Energy for Refugees and Host Communities II Renewable Energy for Refugees 	<ul style="list-style-type: none"> • Access to Energy for Refugees and Host Communities II • Renewable Energy for Refugees
Market Development Activities and Technical Assistance	<ul style="list-style-type: none"> • Market based Energy Access (MBEA) II • Digital Agents for Energy+ 	<ul style="list-style-type: none"> • Market based Energy Access (MBEA) • Market based Energy Access (MBEA) II Sustainable Use of Natural Resources and Energy in the Refugee Context in Uganda • Building a market system for clean energy in Burkina Faso 	

C Appendix C: Detailed Project Analysis

Please note that the major sources for the information on the projects have been cited with the Project Name. Additional sources on specific pieces of information may also have been cited further along in the body of the analysis.

Intervention Category	Direct Supplier Grant Financing			
Project Type	Productive, Public	Public	Consumptive, Productive	Productive
Project Name	Solar Powered ICT and Learning Hub for Kakuma (Chatham House, 2021)	Installing Solar Systems in Healthcare Clinics Run by IRC (Chatham House, 2021) (Moving Energy Initiative, December)	De-Risking Pay-As-You-Go Solar Home Systems in Uganda Refugee Settlements Project (USAID, 2018)	Remote-Controlled Solar Systems for Businesses in Rwamwanja Refugee Settlement
Timeline	2017-2019	2018	2018-2020	2019-2021
Project Implementer/Lead	Moving Energy Initiative ¹¹	Moving Energy Initiative	Smart Communities Coalition/ USAID Power Africa, Green Powered Technology, and Energy 4 Impact	Solar Today
Country	Kenya	Kenya	Uganda	Uganda
Settlement/Host Community	Kakuma	Kakuma	Kiryandongo and Rwamwanja	Rwamwanja and Kamwenge district host community
Overview	Moving Energy Initiative funded a project implemented by Crown Agents to construct the solar-powered ICT Nuru Access Center in Kakuma refugee camp. It was set up at the end of 2017 and took two weeks to construct. The personal computers in the center require only 7 watts to power, compared to 250 watts required by most personal laptops.	The International Rescue Committee (IRC) runs a number of health clinics and hospitals in Kakuma refugee camp in Kenya. The Moving Energy Initiative worked with IRC and KubeEnergy to install new solar systems in Clinics 5 and 6. A 36-KW system was installed at Clinic 6, and a 3-KW system was installed at Clinic 5. Both systems include battery storage and were completed in 2018.	Green Powered Technology and Energy 4 Impact engaged with three SHS companies BrightLife, Fenix International, and SolarNow to establish the infrastructure and operating systems required to initiate SHS sales; conduct marketing, recruitment, and training programs; and provide customer service operations. All three grantees are looking to continue operating in the area encouraged by the repayment rates. Two of the three grantees have seen “acceptable” repayment rates while one is looking to scale back to cash operations.	Through the Off-Grid Energy Challenge, a dedicated grant window made possible by USAID/Power Africa and EDP Renewables, USADF is providing and managing grants for local entrepreneurs to address energy access gaps in forcibly displaced and host communities in Kenya and Uganda. One grantee, Solar Today, is training youth and entrepreneurs in using solar energy to power commercial activity, including hair salons, Internet centers and phone charging stations in Rwamwanja settlement.

11. A collaboration of Energy 4 Impact, Chatham House, Practical Action, the Norwegian Refugee Council (NRC), the Office of the United Nations High Commissioner for Refugees (UNHCR) and the UK Department for International Development (DFID)

Intervention Category	Direct Supplier Grant Financing			
Project Type	Productive, Public	Public	Consumptive, Productive	Productive
Target/purpose of project	<p>The project aimed to offer a place where refugees can access a variety of digital services as well as technical, financial, and literacy training and printing, internet, and mobile charging services. Partners also use the hub as an outreach center for youth education and empowerment and target a 50:50 male to female utilization ratio.</p> <p>Additionally, the hub offers workshops on entrepreneurship, commercial services like a cyber cafe, and a potential sales point for pay-as-you-go SHS for local residents.</p>	<p>The project was intended to help the IRC reduce diesel power consumption at its clinics by 54,000 liters annually so that it could invest savings in other healthcare facilities. Additionally, it sought to train hospital staff in installation and maintenance of the system and connect local businesses to the power grid.</p>	<p>The project sought to de-risk the entry requirements for pay-as-you-go SHS providers in the settlements in order to incentivize companies to establish or expand operations. The primary goal was to deliver more access to SHS in both the refugee and host communities through market development. Product prices were not subsidized directly.</p>	<p>The grant window intended to increase access to energy provided by African-owned enterprises (including African refugee-owned enterprises) for residents and businesses within target refugee settlements in Kenya and Uganda and host communities. Solar Today intended to use its grant to provide affordable solar for business owned by refugees in Rwamwanja and host settlement Kamwenge.</p>
Funding source	Moving Energy Initiative	Moving Energy Initiative	United States Agency for International Development (USAID)	United States Agency for International Development (USAID)
Funding amount*	Grant of approximately \$125,502 (AidStream, 2017)	Grant of approximately \$200,000	Grant of approximately \$460,000	Grant of approximately \$100,000
What worked?	<p>Results showed that just over half of all hub users had their very first experience of accessing digital media at the center.</p> <p>The hub can also foster good relations between the camps and the host community because host community members can also use the hub.</p>	<p>The project successfully replaced the Clinic 6 diesel generator and electrified Clinic 5, which previously had no electricity access.</p> <p>Fuel consumption and operating and maintenance expenses were reduced at the clinics.</p>	<p>The project showed potential for a sustainable market in both communities. Other successful results: Engagement with local leaders to enhance access in settlements, collaboration with local Non-governmental organizations (NGOs) and training centers to recruit local talent, integration of the host and refugee markets, customers who were using SHS for business purposes emerged as more consistent payers, mix of various marketing strategies including use of radio for sales and to attract new customers, multiple market 'activation' events per week, door-to-door sales and customer referrals, and early repayment rates were considered favorable.</p>	<p>To date, Solar Today successfully installed 122 solar PV systems for small businesses with the following results:</p> <ul style="list-style-type: none"> • 109 beneficiaries (74% men and 26% women) • 200 skills trainings provided (110 men and 90 women) • \$20,000 in estimated savings by businesses <p>The solar PV systems have been shown to successfully power commercial activities, including refrigeration of produce and milk, and beauty salon products.</p> <p>In response to COVID-19, Solar Today worked with their partner businesses to help them adapt, including re-assessing their product offerings and shifting the physical placement of sales points to be closer to customers. Local user trainings were well-received by partner businesses.</p>

Intervention Category	Direct Supplier Grant Financing			
Project Type	Productive, Public	Public	Consumptive, Productive	Productive
What did not work?	A few months after the hub opened, it was noted that only 18% of the energy available was being used. However, this was converted to an opportunity as the implementing agency found that there was significant interest from local businesses in connecting to the hub to supply additional energy services, which would generate additional income for the hub (Crown Agents, 2019).	O&M partner for the project, Power Gen, highlighted that finding qualified technicians in the local population can be challenging (Energy4Impact, 2019).	There was a lack of points of service infrastructure in refugee settlements, which may be tackled by exploring satellite presence. There were also language barriers in recruitment and training, and the high turnover of staff and wage inflation in the region due to humanitarian organizations required formulation of more attractive payment or incentive structures. There was a lack of mobile money penetration that impeded repayment, and identification issues and lack of data that made assessing credit history difficult.	As solar equipment was received by Solar Today in December 2019, the COVID-19 pandemic consequently slowed down installations and limited access to the settlement. For example, from April-June 2020, only 7 systems were installed. Although Solar Today adapted mobilization and demonstration activities to be digital, this was a slow and challenging process given the pandemic.
Analysis	24% of hub users were utilizing the ICT facilities for educational purposes 59% were using email and social media to connect with loved ones and advise them of their whereabouts	Clinic 6 previously spent \$2,334 per month on diesel, and Clinic 5 had no electricity but was planning on installing a diesel generator that would have cost \$10,000 to build and \$675 per month to run. The project reduced total energy costs, including maintenance and depreciation of the system, to \$500 per month. IRC reduced its fuel consumption by 100% (72,000 liters of diesel annually). As of December 2018 (about 6 months after installation) the solar systems were still supplying 100% of the clinics' power needs.	Units Sold: 4,137 Units Target: 10,000 Jobs Created: 285 Jobs Target: 15 Refugees accounted for 22% of sales, and women accounted for 31%. Repossession Statistics: BrightLight: Repossessed 190 units (lower than the absolute target of 260) Fenix: Repossessed 114 systems SolarNow: information unavailable	SolarToday used its local connections as a Ugandan company to enter the settlement and interact with refugees. Targeted, in-person trainings for entrepreneurs and businesses were received positively.

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Intervention Category	Direct Supplier Grant Financing	Demand-Side Intervention	
Project Type	Consumptive, Productive	Consumptive, Productive, Public	Consumptive, Productive
Project Name	Supporting a solar retailer to test the market in a displacement setting (BBOXX) (Moving Energy Initiative, 2018) (Whitehouse, 2019)	Renewable Energy for Refugees (Practical Action, 2020) (EnDev, 2020)	Accessing Markets through Private Enterprises for Refugees' Energy access (AMPERE) (Mercy Corps, 2021) (Mercy Corps, 2019) (Columbia SIPA Energy and Environment, 2020)
Timeline	2018	2017-2022	2019 to 2020
Project Implementer/Lead	Moving Energy Initiative	Practical Action, in partnership with UNHCR	Mercy Corps Netherlands (Mercy Corps), in partnership with SNV and Response Innovation Lab (hosted at Save the Children)
Country	Kenya	Rwanda	Uganda
Settlement/Host Community	Kakuma	Kigeme, Nyabiheke, and Gihembe	Bidibidi
Overview	<p>The Moving Energy Initiative provided funding to BBOXX Capital to establish retail outlets for its pay-as-you-go SHS. The grant covered the acquisition of an initial 75 units, rent and staff costs for an initial six-month period, associated training costs, and co-funding of marketing materials for the company. Customers were required to pay a KES 1,780 (~USD 17.5) deposit and a monthly fee of KES 900 (~USD 8) until the balance had been repaid in full (approximately 3 years). The customer then has to pay KES 450 (~USD 4.15) per month to continue receiving support for the system.</p> <p>Further, marketing support was provided to BBOXX by MEI including the conducting of roadshows for raising awareness and running advertisements.</p>	<p>The Renewable Energy for Refugees project focuses on helping refugees and their host communities access finance, training, technology and expertise to facilitate renewable energy powering homes, schools, health clinics and businesses. It targets the provision of solar-powered electricity for households, small enterprises, institutions and community facilities (Energy4Impact, 2021).</p> <p>Practical Action is promoting four interventions to address this:</p> <ul style="list-style-type: none"> i) SHS for households and enterprises ii) biomass and advanced cooking technologies iii) solar powered community street lighting iv) solar power for institutions, community facilities, and enterprises. <p>They have taken a "Total Energy Access" approach in assessing levels of energy access that involves extensive surveys and interviews in the community to identify the most crucial challenges in energy access in the camps.</p> <p>The project is ongoing.</p>	<p>Mercy Corps conducted this pilot to evaluate solutions to energy needs in humanitarian settings through market interventions. The program utilized demand-side product subsidies as well as some market activation activities to enhance long-term investments in BidiBidi, addressing the access to high-quality, reliable, and clean energy sources. Mercy Corps partnered with two private solar energy providers—Village Power and d.light—to initiate the AMPERE pilot project. Mercy Corps played a coordinating role, while Village Power and d.light were tasked with managing all sales operations in the settlement.</p>

Intervention Category	Direct Supplier Grant Financing	Demand-Side Intervention	
Project Type	Consumptive, Productive	Consumptive, Productive, Public	Consumptive, Productive
Target/purpose of project	The project sought to de-risk the entry requirements for pay-as-you-go SHS providers in the settlements in order to incentivize companies to establish or expand operations. The primary goal was to test the market for camp occupants and businesses and deliver high-quality solar products to the community. Product prices were not subsidized directly.	The target is to help refugees to move from aid dependence to economic independence. The project is supporting about 150 refugee and host community entrepreneurs with business mentoring, access to electricity and appliances, technical training and access to finance. Businesses are supported to procure enterprise solar kits, construct a nano-grid or connect to the national grid.	The project sought to de-risk the entry requirements for pay-as-you-go SHS providers in the settlements in order to incentivize companies to establish or expand operations. The primary goal was to deliver more access to SHS in both the refugee and host communities through market development. Product prices were not subsidized directly.
Funding source	Moving Energy Initiative	iKEA Foundation	Netherlands Enterprise Agency (RVO)
Funding amount*	Grant of approximately \$41,000 USD	Not available	\$486,104.64 USD
What worked?	<p>Previous assessments that identified market potential for SHS proved correct.</p> <p>Demand for the systems was found to be even higher than what the initial acquisition anticipated, particularly in the refugee community.</p> <p>BBOXX invested additional funding of their own and continues to operate in Kakuma today.</p>	<p>Tailored one on one package of support and business mentorship</p> <p>Vocational training to entrepreneurs</p> <p>A PUE (Productive Use of Energy) clinic was constructed in each camp to create awareness of the potential of productive use of energy for livelihood development among the refugees.</p>	<p>Repayment rates by the refugees were found to be similar to the ones observed in the host community across companies' portfolios. As such, the two OGS suppliers involved in the pilot expressed the intention to remain in the area to continue assessing market demand.</p> <p>There was high brand recognition of private companies since they were serving different consumer segments - a study showed that a vast majority of respondents would direct product issues to the OGS providers, not Mercy Corps. 40% said they would call the respective call center and 35% said they would visit the call center in person.</p> <p>Emphasis on cash payment options, and cheap and portable products increased the sales.</p> <p>Detailed consumer segmentation in the area allowed the sector to determine the needs that may be met through supported local energy markets and revealed more clearly who may be excluded.</p> <p>Co-designing of proposed interventions allow for market actors to suggest potential design iterations derived from their knowledge and experience.</p> <p>Community-level market activation events such as the "Mercy Corps campaign" and "walking sales agents" worked to improve awareness among customers.</p> <p>Product quality tests done during the demonstrations led to higher trust and product credibility.</p> <p>Setting up service centers that covered warranties, customer education, and after sales services were also useful for consumers.</p>

Intervention Category	Direct Supplier Grant Financing	Demand-Side Intervention	
Project Type	Consumptive, Productive	Consumptive, Productive, Public	Consumptive, Productive
What did not work?	<p>High logistics and transportation costs, especially compared to other BBOX locations, require a large customer base to be economically viable, which is challenging given the frequent customer relocation and low sales volume relative to the market size.</p> <p>The sales rates observed in the pilot stage are not viable.</p> <p>Training, marketing and credit-provision activities are dependent on aid agencies.</p>	<p>Behavioral resistance due to resettlement plans of refugees</p> <p>Refugees are hesitant to operate businesses in the host community due to taxes and other operating costs.</p> <p>Low purchasing power among refugees undermining growth projections.</p> <p>Dependence on aid and support – the RE4R program has covered 70% of the cost of the technology</p>	<p>Dependence on subsidy levels was observed. Once the subsidy was reduced to 50% in phase II of the project, there was a decrease in purchases.</p> <p>Penetration of mobile money is low in the Bidibidi camp, so refugees have to travel longer distances to access mobile payment points.</p> <p>Seasonality of incomes in the displacement communities. The main income seasons are November and December. This means that beyond these months, the solar companies have to strategize to keep operations active in the settlements. AMPERE took this into consideration in designing the various phases of the activation events. This ensured the maximization of resources and strategies aimed at encouraging payment in lean seasons.</p>
Analysis	<p>Units Sold¹²: 105 The first 75 were Financed by the grant, and 40 more were later financed by BBOX as demand exceeded supply.</p> <p>Jobs Created: 13</p> <p>0% default rate in the first two months</p>	<p>Appliances Acquired - 51 business owners</p> <p>People Trained: 145 entrepreneurs and stakeholders trained on the potential of PUE</p> <p>Suppliers of Appliances: 6, linked to 51 enterprises</p> <p>PUE Appliances Acquired: 80</p>	<p>Products Sold: 3,918 Households Benefited: 2,489 including 30 SMEs PAYGO Systems: 603 On-time Payments (pre-COVID): 75% On-time Payments (post-COVID): 68%</p>

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12. 2019 report on Adopting a Market-based Approach to Boost Energy Access in Displaced Contexts.
<https://www.chathamhouse.org/sites/default/files/publications/research/2019-03-25-MEIWhitehouse.pdf>

Intervention Category	Demand-Side Intervention	Market Development	
Project Type	Consumptive, Productive and Public	Consumptive	Productive and Consumptive
Project Name	Access to Energy for Refugees and Host Communities II. (Alianza Shire, 2021) (Moreno-Serna, et al., 2019)	Market based Energy Access (MBEA) I (SNV, 2020) (EnDev, 2020)	MBEA II (SNV, 2021)
Timeline	2018-Ongoing	2017-2019	2019-2021 (estimated 2023)
Project Implementer/Lead	Alianza Shire ¹³	SNV Netherlands Development Organisation under EnDev	SNV Netherlands Development Organisation under EnDev
Country	Ethiopia	Kenya	Kenya
Settlement/Host Community	Shire (Adi-Harush, Hitsats, Mai-Aini, and Shimelba)	Kakuma and Kalobeyei	Kakuma and Kalobeyei
Overview	<p>The first phase of the project was aimed at the improvement and extension of the electricity grid and connecting to communal services including a primary school, communal kitchens, or markets hosting small businesses. Further, street lighting covering over 4 KM was installed, and training was given to refugees to become the technicians in charge of maintaining the infrastructure. The second phase of the project scaled up these targets and added the provision of 1700 3G Solar Home Systems on prepayment basis (Alianza Shire, 2021) to pre-identified beneficiaries as one of the components. Alianza Shire is holding workshops with potential users and the community to reach an agreement for the rates to be applied which will achieve long-term sustainability of solar home systems (Alianza Shire, 2020). This phase also aims to support the creation of 6 micro-businesses owned by refugees and host communities which will be in charge of the operation and maintenance of the SHS.</p>	<p>SNV and EnDev collaborated with several private sector organizations to deliver efficient cookstoves, SHS, and solar appliances to the two refugee camps and surrounding communities. Project activities included awareness campaigns, supply chain development, setting up linkages with local traders, and training local residents in stove production.</p>	<p>MBEA II is an ongoing project that builds upon the MBEA I pilot and has expanded its targets to micro-enterprises and social institutions, as well as to individual households. In addition to the continued activities from MBEA I, SNV is facilitating access to finance for micro businesses and households by partnering with financial intermediaries and the development of a cash-based intervention (CBI).</p>

13. Spanish Agency for International Development Cooperation (AECID), Iberdrola, Signify and Acciona.org, and the Innovation and Technology Centre at the Universidad Politécnica de Madrid (itdUPM), UNHCR

Intervention Category	Demand-Side Intervention	Market Development	
Project Type	Consumptive, Productive and Public	Consumptive	Productive and Consumptive
Target/purpose of project	The project is intended to improve the living conditions in the host and refugee communities by creating livelihood opportunities, enhancing local capacity building and improving access to energy services.	The project sought to increase access to cleaner cooking alternatives and solar lighting through creating a market for private sector suppliers in the communities.	The project aims to further increase clean cooking and solar energy access for individuals in the camps, as well as provide clean cooking and lighting products for businesses and institutions.
Funding source	European Union's Emergency Trust Fund for Africa	SNV, EnDev	SNV, EnDev
Funding approach*	\$5,507,225	Not available	Not available
What worked?	<p>Results not available yet as the project is ongoing.</p> <p>Major Considerations include focus on refugee-host integration, high quality products, economic sustainability, and training of locally diverse stakeholders.</p>	<p>Local presence and strong network with different parties in the camps including community leaders and public and private sector organizations.</p> <p>Use of local capacity for awareness campaigns, community engagement, and regular soliciting of feedback from end-users and distributors</p> <p>Awareness campaigns had a positive effect on purchases, especially in middle and high-income groups.</p> <p>Solar suppliers were quick to engage in the market.</p> <p>Decentralizing operating and maintenance processes can improve customer service - for example, spare parts and repair centers can be set up locally to avoid delays that disincentivize future purchases.</p> <p>This approach appeared to be more effective in promoting lighting solutions and higher quality cookstoves. The higher uptake of energy access products among host community households shows the importance of higher disposable income and ability to pay among the target market in driving uptake. Nevertheless, the steady uptake for lighting solutions among refugees demonstrates a willingness to pay even among lower-income households.</p>	Not applicable - ongoing

Intervention Category	Demand-Side Intervention	Market Development	
Project Type	Consumptive, Productive and Public	Consumptive	Productive and Consumptive
What did not work?	Major challenges highlighted by implementing agency include lack of key information about the operating environment such as income and population distribution; resistance of beneficiaries towards paying for a service; lack of coordination amongst multiple local stakeholders, humanitarian vs development mindset, and lack of consolidation of previous learnings (Alianza Shire, 2020).	<p>Lack of steady bioethanol supply made people reluctant to fuel switch and acquire new stoves. Suppliers were not adequately prepared to provide a steady stream of bioethanol after new stoves were sold.</p> <p>The small businesses and local sellers distributing efficient stoves, lighting, and SHS struggled to cover the upfront costs of stock, introducing uncertainty about the reliability of the market.</p> <p>Awareness campaigns were not as effective with lower-income residents with lower purchasing power, and they continue to rely on UNHCR.</p> <p>Many in the communities still use firewood, as fuel switching will require deeper behavioral changes, and the scope of the marketing campaign is limited despite being demonstrably effective.</p>	Not applicable - ongoing
Analysis	Results not available.	<p>Solar Products Sold: 2,556 solar lanterns and 4,322 SHS</p> <p>Stoves Sold: 2,005 industrial stoves and 277 locally made stoves</p> <p>Bioethanol, briquettes, and pellets were successfully introduced in the communities. Solar appliance uptake was higher in the host community.</p>	Not applicable - ongoing

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Intervention Category	Market Development		
Project Type	Productive	Consumptive	Consumptive
Project Name	Digital Agents for Energy+ (Smart Communities Coalition, 2020) (Norwegian Refugee Council, 2021)	Sustainable Use of Natural Resources and Energy in the Refugee Context in Uganda (EnDev, 2018) (EnDev, 2020)	Building a Market System for Clean Energy (Moving Energy Initiative, 2018) (Moving Energy Initiative, 2021)
Timeline	Ongoing	2017-2018	2017-2018
Project Implementer/ Lead	Norwegian Refugee Council, International Trade Centre, and Mastercard.	GIZ, EnDev Uganda	MEI
Country	Kenya	Uganda	Burkina Faso
Settlement/Host Community	Kakuma and Kalobeyei	Imvepi and Rhino	Goudoubo
Overview	The project seeks to create job opportunities for the refugees and host community youth and train small businesses and individual entrepreneurs to sell clean energy products in Kakuma and Kalobeyei.	The project consisted of a series of interventions to increase energy access in the refugee and host communities, including awareness raising activities, training local stove artisans, supporting local vendors for energy products, and setting up energy kiosks.	MEI worked with the local private sector to develop market systems for solar products, including SHS. MEI took a systems approach for energy access by improving information flow, market channels, customer financing, and after-sales technical support.
Target/purpose of project	<p>The pilot is targeting twenty-five refugee and host community youths to become agents and five SMEs as the wholesalers of the energy products supplied by Total in Kakuma and Kalobeyei.</p> <p>The Project aims to test a model that would allow different product lines to reach the bottom of the pyramid customers, while offering employment opportunities and market development.</p>	The project sought to create an integrated approach to sustainable energy access and cooking solutions, in addition to other ecosystem goods and services. Additionally, it sought to create a market-based system to deliver cookstoves and energy products, specifically Pico PV, to the communities (UNHCR, 2017).	<p>MEI targeted the development of a market systems project around the systemic constraints affecting the functioning of the market. The project aimed to demonstrate that even in highly underdeveloped markets, there is an opportunity to catalyze the growth and development of the market system. The project focused on:</p> <ul style="list-style-type: none"> • Market perceptions: changing the perception of the energy system by demonstrating the products' market potential • Marketing and retail: facilitating direct marketing interactions between energy companies and energy users • Financing: challenging the idea that aid agencies must deliver credits or loans, which displace local finance mechanisms • After-sales engagement: willingness to invest in energy is dependent on customer satisfaction, therefore after-sales support improves the customer experience and promotes the creation of future demand

Intervention Category	Market Development		
Project Type	Productive	Consumptive	Consumptive
Funding source	TRANSFORM, a joint initiative of DFID and Unilever	DFID	MEI
Funding approach*	Direct grant support to the International Trade Center and Norwegian Refugee Council to carry out training for 25 refugee/host community youths to become agents and 5 SMEs to become wholesalers (as well as follow-up mentorship support).	Grant of approximately \$330,000	Not available
What worked?	<p>A market assessment was conducted in the first stage of the project.</p> <p>Training and mentorship were provided to the energy product agents and wholesalers. A collaborative training approach was used with Total providing product training, Mastercard providing online platform and application training, and ITC conducting entrepreneurship and business development training.</p>	<p>Kiosk managers reinvested revenues in restocking products</p> <p>Awareness-raising activities, especially allowing people to try out solar products and stoves, increased their confidence in these products. Included roadshows and billboards</p> <p>The two kiosks are run under two different models with one being run as a business by a South Sudanese refugee group while the other is with a NGO. The business model has emerged as more successful</p> <p>Energy related services such as cafe, printing, photoshops requiring no awareness raising have emerged as most successful</p>	<p>MEI identified 2 companies that were fully committed to carrying out self-directed marketing activities in the region.</p> <p>MEI encouraged ideas from the market and supported the process to bring them to fruition while also facilitating the right conditions for firms to take action.</p> <p>The local curriculum of the training and employment institute (ANPE) in Dori was adapted to include a module on solar products and systems.</p> <p>Visual materials (such as cartoon-based posters) were developed to be engaging for the private sector</p>

Intervention Category	Market Development		
Project Type	Productive	Consumptive	Consumptive
What did not work?	<p>Product delivery was delayed due to additional documentation and verification requirements which increased transportation and processing costs.</p> <p>Access to finance for the product wholesalers was a challenge with local banks having cumbersome collateral and documentation processes and a high interest rate on loans.</p> <p>Delays in the production and distribution of marketing materials was experienced which affected the branding and marketing plan.</p> <p>A high level of competition and saturation of the solar energy market was observed in parts of Kakuma 1 and Kalobeyei.</p> <p>Recognition that a collaborative approach should have been used early on with agents, wholesalers, and the supplier so as to establish a price range that would provide for break-even points and different profit margin levels giving agents flexibility to adjust price points.</p> <p>Covid-19 restrictions have affected proposed market campaign activities resulting in fewer sales than expected.</p>	<p>The original implementation time of roughly half a year was insufficient for supporting the up-take of energy businesses, and developing viable business models</p> <p>Kiosk managers need continuous support</p> <p>Road infrastructure is poor which impacts logistic</p> <p>Challenges in incentivizing solar product providers to sell their products in the kiosks</p> <p>Lack of formal micro-financing schemes for customers to access energy products</p> <p>Low purchasing power and willingness to pay</p> <p>Kiosk established in more recent settlement which had experiences of in-kind distribution recently faced more challenges in sales</p>	<p>MEI found that information and marketing, after-sales support, and finance were not all trickling through to marginalized communities, including to the refugees.</p> <p>Insufficient engagement with aid agencies such as UNHCR</p> <p>More information is needed on the market distortions caused by the free distribution of energy products.</p>
Analysis	<p>60 sales of the Total products had been made as of 15th February 2021.</p> <p>The project provided training to five small businesses to become wholesalers and 25 youth entrepreneurs to become agents of the energy products supplied by Total.</p>	<p>2 solar energy kiosk in adapted portable containers that sell quality solar products, improved cookstoves, cold drinks and energy-related services were set up</p> <p>Kiosk management teams were provided with training</p> <p>Income generation for 8-10 members of a South Sudanese youth group</p>	<p>Fifty-five energy agents trained and recruited by firms available for sales, marketing, repairs and maintenance in Dori, and Goudoubou camp.</p> <p>Brought together over 75 organizations - UNHCR, other aid agencies, NGOs and development organisations, the private sector, and the government – during networking sessions, workshops and conferences for discussion on market systems</p>

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