

End-user finance and payment systems in displacement settings: Kenya, Uganda, Ethiopia

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Registered offices
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Address
Postcode and town, country
T +49 61 96 79-0
F +49 61 96 79-11 15

E info@giz.de
I www.giz.de/en

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Author:
Practical Action Consulting International (PAC):
Andrea Ranzanici (Consultant)
Cecilia Ragazzi (Consultant)
Katrina Pielli (Consultant)
Philippe Breul (Consultant)
Judith Ibáñez Sánchez (Energy Advisor at PAC)

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List of Abbreviations

ACAV	Associazione Centro Aiuti Volontari
AEMFI	Association of Ethiopian Microfinance Institutions
ARRA	Administration for Refugee and Returnee Affairs
ATM	Automated teller machine
BECS	Bundibugyo Electricity Cooperative Society
BIO	Belgian Investment Company for Developing Countries
BMZ	German Federal Ministry for Economic Cooperation and Development
BoU	Bank of Uganda
CAPEX	Capital expenditure
CBA	Commercial Bank of Africa
CBI	Cash-based intervention
CBO	Community-Based Organisation
CES	Cooking Energy System
CGD	Center for Global Development
CRB	Credit Reference Bureau
CRRF	Comprehensive Refugee Response Framework
CTA	Cash Transfers Assistance
DBE-WB	Development Bank of Ethiopia - World Bank
DCA	DanChurchAid
DFID	Department for International Development
DRC	Danish Refugee Council
DRDIP	Development Response to Displacement Impacts Project
DS	Displacement settings
DSF	Demand-side financing
EAS	Energy access solutions
EPRA	Energy and Regulatory Petroleum Authority
ERPA	Emission Reduction Purchase Agreement
EnDev	Energising Development
ES	Energy Services
ESDS	Energy Solutions for Displacement Settings
ESP	Energy service providers
ETB	Ethiopian Birr
EUF	End-user financing
FAO	Food and Agricultural Organization of the United Nations
FAS	Faulu Advisory Services
FIs	Financial institutions
FKDTM	Faulu Kenya Deposit Taking Microfinance Institution
FOREX	Foreign Exchange (hard currency)
FSDU	Financial Sector Deepening in Uganda
FSP	Financial service providers
GCAP	Global Call to Action Against Poverty

GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GOGLA	Global association for the off-grid solar energy industry
HF	Housing Finance
HQ	Headquarters
HS	HelloSolar
ICS	Improved cookstoves
ICT	Information communications technology
Ids	Identities
IEA	International Energy Agency
IFC	International Finance Corporation
ILF	International Lifeline Fund
INGO	International humanitarian nongovernmental organisations
IP	Implementing partner
IRC	International Rescue Committee
JAM	Joint Aid Management
KCB	Kenya Commercial Bank
KES	Kenyan Shilling
KIL	Kilembe Investments Limited
KOSAP	Kenya Off-grid Solar Access Project
KPLC	Kenya Power and Lighting Company
KRECS	Kyegegwa Rural Energy Co-operative Society
KSh	Kenyan Shilling
KWFT	Kenya Women Finance Trust
KYC	Know Your Customer
LPG	Liquefied petroleum gas
LWF	The Lutheran World Federation
MCIT	Ministry of Communications and Information Technology
MDIs	Microfinance deposit-taking institutions
MEI	Moving Energy Initiative
MFI	Microfinance Institution
MI	Malteser International
MICES	Modern and improved cooking energy system
MOE	Ministry of Energy
NBE	National Bank of Ethiopia
NGO	Non-governmental Organisation
OPM	Office of the Prime Minister
PACMECS	Pader-Abim Community Multi-Purpose Electric Co-operative Society
PAR	Photosynthetically Active Radiation
PAYGO	Pay-as-you-Go
PHB	PHB Development

PIN	Personal Identification Number
PUE	Productive use of Energy
PV	Photovoltaic
RAS	Register of persons and Refugee Affairs Secretariat
RBF	Result-based financing
RCC	Refugee Central Committee
REA	Rural Electrification Authority
ROSCA	Rotating Savings-and-credit associations
RRP	Refugee Response Plan
RuSACCO	Rural SACCO
SACCO	Saving and Credit Cooperatives
SANAD	SANAD Fund for MSMEs
SCC	Smart Communities Coalition
SCI	Save the Children
SEforALL	Sustainable Energy for All
SERP	Sustainable Energy Response Plan
SHGs	Self-help groups
SHS	Solar home systems
SSF	Supply-side financing
SUN	Support to UNHCR in the implementation of the Global Compact on Refugees (GCR) in the Humanitarian-Development-Peace Nexus
TVRA	The Victims Relief Alliance
UECCC	Uganda Energy Credit Capitalization Company
UEDCL	Uganda Electricity Distribution Company Limited
UGX	Ugandan Shilling
UNCDF	Digital finance for energy access in Uganda
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees
UOMA	Uganda Off-grid Market Accelerator
URCS	Uganda Red Cross Society
UrSACCO	Urban SACCO
USAID	United States Agency for International Development
USD	US Dollar
VAT	Value added tax
VFI	Vision Fund International
VSLA	Village Savings and Loan Associations
WENRECo	West Nile Rural Electrification Company
WFP	World Food Programme
WGs	Working Groups
WHH	Welthungerhilfe
WSME	Women Small and Medium Enterprise

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Energy Solutions for Displacement Settings Ethiopia, Kenya and Uganda

Project Info: SUN-ESDS

The BMZ commissioned Global Program “Support to UNHCR in the implementation of the Global Compact on Refugees in the Humanitarian-Development-Peace Nexus (SUN)”, implemented by GIZ, seeks to support UNHCR in its role as facilitator of the implementation of the **Global Compact on Refugees** (GCR) and the Comprehensive Refugee Response Framework (CRRF) in selected refugee contexts and sectors. The program is part of the German Special Initiative “Tackling the Root Causes of Displacement, (Re-)integrating Refugees”. It currently provides advisory services to UNHCR on a global level and supports UNHCR in creating and mainstreaming knowledge on the operationalization of the GCR.

The **Energy Solutions for Displacement Settings** (SUN-ESDS) component works closely with UNHCR and local partners to provide energy solutions that cater to the needs of both refugee and host communities in our project countries – Uganda, Kenya, and Ethiopia. SUN-ESDS is also the German contribution to the **Clean Energy Challenge** issued by UNHCR in 2019 with the following objective: “**All refugee settlements and nearby host communities will have access to affordable, reliable, sustainable and modern energy by 2030.**”

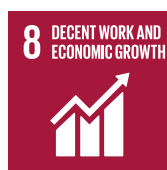
The SUN-ESDS project works through three intervention areas:

Improving the policy framework through providing advisory services to governmental stakeholders to promote the inclusion of refugees into national service delivery systems. The project collaborates with the affected communities, and governmental, non-governmental and private sector partners to develop more sustainable energy solutions.

Greening infrastructure in displacement settings through supporting the solarization of UNHCR offices as well as settlement/camp and communal infrastructure, thereby promoting more environmentally sustainable and cost-efficient energy solutions. The project develops energy delivery models that are attractive to the private sector.

Increasing energy access through developing self-sustaining markets for basic energy related services and products, improving access to finance and promoting participatory design processes benefitting households, social services, and small businesses of both refugees and host communities while reducing the pressure on the environment.

We contribute to the following SDGs



EXECUTIVE SUMMARY

Energy Solutions for Displacement Settings (ESDS) is one of four project components of the German Federal Ministry for Economic Cooperation and Development (BMZ) commissioned Global Programme “*Support to UNHCR in the implementation of the Global Compact on Refugees (GCR) in the Humanitarian-Development-Peace Nexus*” (SUN) which assists the United Nations High Commissioner for Refugees (UNHCR) and other stakeholders in operationalising the GCR in selected displacement contexts. ESDS focuses on the sustainable energy sector and seeks to remedy the lack of sustainable energy supply in displacement settings (DS) in order to enhance the self-reliance of communities in Ethiopia, Kenya and Uganda. To that end, ESDS offers global advisory services, implements technical measures and cooperates with relevant stakeholders to promote sustainable and affordable energy access via market-based solutions and to create enabling framework conditions.¹ With a view that humanitarian approaches are typically not geared to long-term sustainability, and due to the often-protracted displacement crisis, ESDS is interested in integrating market-based mechanisms to the energy sector in displacement settings and their host communities. Some of the biggest obstacles to a market-based energy supply and demand in these communities – whether real or just perceived – are the low and seasonal purchasing power of the customers, market risk due to the perception and narrative of the temporary nature of the camps, regulatory uncertainty, and cultural barriers. All these factors concur to very low penetration of energy and financial service providers (respectively ESP and FSP) in the target areas.

This study was commissioned to assess existing and develop tailored end-user finance solutions and payment systems that can be applied in ESDS’ project settings for energy products and services by considering necessary preconditions. This ‘global’ study of End-user financing (EUF) and payment mechanisms was managed in coordination with three other studies running in parallel: one to understand the humanitarian (non-market) EUF that is initiated by donors and agencies currently in use in DS, with a view to mapping characteristics, successes, challenges and potential entry points for market-based mechanisms; the second, to collect on-the-ground data on the energy EUF mechanisms in refugee settlements in Ethiopia, Kenya and Uganda; and finally, a third study which aims to assess the potential for ESDS to improve livelihoods through market-based energy interventions and to develop content that can be used to promote energy-related livelihoods among refugees and host communities.

In the first part, the study provides an introduction to EUF, its most common uses, advantages, and disadvantages. It compares it with supply-side financing (SSF) and shows their complementarity toward increasing market uptake of sustainable energy products and services in rural settings.

The second section offers a comprehensive overview and assessment of existing market-based end-user and payment systems, including their preconditions, which shall serve as the basis for examining their transferability and adaptation for energy products and services in ESDS’ project settings. It does so by providing insights both at a national level and in the refugee camps targeted by the programme in Kenya, Uganda and Ethiopia.

In the third part, the study carries out deep dives into specific models based on the existing preconditions, with the aim to propose concrete entry points through pilot initiatives aimed at testing EUF in the targeted settings. These proposals include specific plans for execution, funds and stakeholder maps.

1 Energy Solutions for Displacement Settings – energypedia.info

Finally, the study details the role and tasks of each stakeholder, with a specific focus on the Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) and UNHCR, including recommendations of policy advocacy.

The main outcomes of the study show how the three countries of intervention vary widely in terms of market readiness, regulation, and financing environment, with Kenya and Uganda showing an overall higher level of market maturity than Ethiopia. EUF can support higher uptake of energy products and services in the target displacement settings, provided that market-based activities are already present and in need of a boost. In situations where markets are extremely fragile or even non-existent, supply-side financing should also be provided.

The intermediation through financial service providers is possible but challenging. Larger formal institutions cannot easily be found in displacement settings, while smaller and more informal structures often do not have the capacity to operate at medium scale and meet the financing needs of large groups. Hence, unless there is a clear mandate for GIZ and UNHCR to boost and support market entry of financial institutions into the target areas, it is rather proposed that the energy provider itself provides EUF whenever possible, both in terms of financial capability and regulation. In those markets where Pay-as-you-Go (PAYGO) through mobile money is well developed, such as Kenya and partially Uganda, this is considered to be an effective, relatively low-cost tool for EUF.

In terms of implication of public stakeholders, and specially GIZ and UNHCR, this varies for each country. It goes from increasing advocacy for a stronger and clearer policy for the integration of displacement settings in Kenya, to further support of integration of innovative technologies such as mobile money in the camps. For Ethiopia, a swift and coordinated implementation of already existing progressive policies should be supported further. In all three cases, however, it is crucial that GIZ and UNHCR coordinate efforts of stakeholders in the camps towards a shift from a primarily humanitarian mindset, to a development one, hence boosting the integration of private sector-led relief initiatives in the target areas.

1. METHODOLOGY AND DEFINITIONS

1.0 Assumptions

This study has been developed based on a number of general assumptions, such as:

- **Energy access solutions (EAS)** at the centre of the report are modern and improved cooking energy systems (MICESs), solar lanterns, solar home systems (SHSs), larger stand-alone solar systems, and mini-grids.
- The main targets are **households** in displacement settings (DS) and the host communities alike, and **small businesses to a lesser extent**.
- We acknowledge the importance of addressing the energy **needs of the host community** as well as the refugee population.
- The introduction of market-based EUF for energy in DS is **legally, practically, culturally and in other ways feasible**.
- Entities outside of displacement settings are currently offering, or could offer, **forms of EUF that could be relevant** to stimulating energy access in DS.
- EUF from friends and family including **remittances**, whether in the form of loans, gifts, or other forms, are not addressed in this report.

1.1 Tools

Work contained in this report relies upon:

- A **literature review** of almost one hundred documents specific to EUF in target countries as well as more broadly in developing countries;
- **Interviews** with more than 20 key stakeholders as identified during the inception phase; and
- **Information exchange and discussions** with:
 - The consultancy focused on the humanitarian (non-market) EUF currently in use in DS;
 - The three national country consultancies aimed at collecting on-the-ground data on the energy EUF mechanisms in the ESDS-targeted refugee settlements in Ethiopia, Kenya and Uganda;
 - The client, both at HQ and national level, regarding mutual expectations and goals.

1.2 Limitations of the Study

There are three identified limitations to this study:

- EUF, especially when it involves humanitarian and development players, is much **less common than supply-side financing**, hence providing fewer successful examples.
- A large part of the assignment **builds on the knowledge and findings of the national consultants** on which, however, we had little influence or control.
- The **broad ambitions of this assignment had to be coordinated** across multiple stakeholders, public and private, most of which could only be consulted remotely.
- Linked to the above, **travel restrictions related to the COVID-19 pandemic** limited the capacity of the consultants to visit the target sites and get a better understanding of the contexts of intervention.

1.3 Definitions

This study looks at the global literature on market-based energy EUP in rural, remote/poor settings, and focuses recommendations on DS in Ethiopia, Kenya and Uganda.

There are several relevant definitions used in this report that are worth explaining:

- **Market-based** is defined as a “*social and economic system in which prices are fixed by the law of supply and demand rather than by a government or other body*”.² This definition offers a clear separation line with other models typically implemented in displacement settings in which prices are set by humanitarian agencies based on different drivers which often result in free hand-out models, and/or distorted market dynamics. Operating through market-based approaches, however, does not necessarily preclude support from state and/or public interventions, as incentives are considered part of market systems, especially for early market development. A clear example is that donors are increasingly talking about demand-side subsidies for these markets, which are subsidies given directly to consumers to overcome the affordability gap to access energy products.³
- **End-users** in this study are defined as “*low-income rural households and small-scale businesses, including those in humanitarian settings (such as refugees), with irregular or seasonal income and limited access to technical infrastructures*”. The term ‘end-users’, ‘consumers’ and ‘customers’ are used interchangeably in this report and from the perspective of energy or financial service providers, represent entities who might be interested in purchasing a product or service.
- **Energy Access Services (EAS)** widely define the range of services and products that make use of energy, either as a mean or as a purpose of a specific product or service provision.
- **Energy service providers (ESP)** are defined as those commercial actors providing energy services or products to final users in the target areas, either in form of solar kits, cooking solutions, or mini-grid related services. These are mostly local distributors and retailers, or operators of mini-grids.
- **Financial service providers (FSP)** include all commercial actors active in the sector of finance provision, at all levels of interventions. They can span local village associations, to commercial banks, and micro-finance institutions. These actors either engage directly with the ESP, in the case of supply-side financing, or with the end-users, in the case of end-user financing.
- **Financing** is the “*process of providing funds for business activities, making purchases, or investing. There are two types of financing: equity financing and debt financing*”.⁴ In this report and for this assignment in general, financing is intended as debt financing, being the most common end-user financing.
- **Financial inclusion** means that individuals and businesses, *including those in humanitarian settings (such as refugees)*, have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance – delivered in a responsible and sustainable way. This study focuses specifically on financial inclusion for the energy needs of refugees and the host communities in the target countries.⁵
- **Know-your-Customer (KYC)** is a standard in the investment industry that ensures investment advisors know detailed information about their clients’ risk tolerance, investment knowledge, and financial position. KYC protects both clients and investment advisors. Clients are protected by having their investment advisor know what investments best suit their personal situations. Investment advisors are protected by knowing what they can and cannot include in their client’s portfolios.

² [Market-based financial definition of Market-based \(thefreedictionary.com\)](https://www.thefreedictionary.com)

³ https://www.gogla.org/sites/default/files/resource_docs/gogla_discussion-paper-subsidies_def_2.pdf

⁴ [Financing Definition \(investopedia.com\)](https://www.investopedia.com)

⁵ [Financial Inclusion \(worldbank.org\)](https://www.worldbank.org)

2. END-USER FINANCING

This chapter explores end-user financing (EUF), its role and importance in the sector, and how it compares to more traditional supply-side financing.

2.0 What is End-User Financing

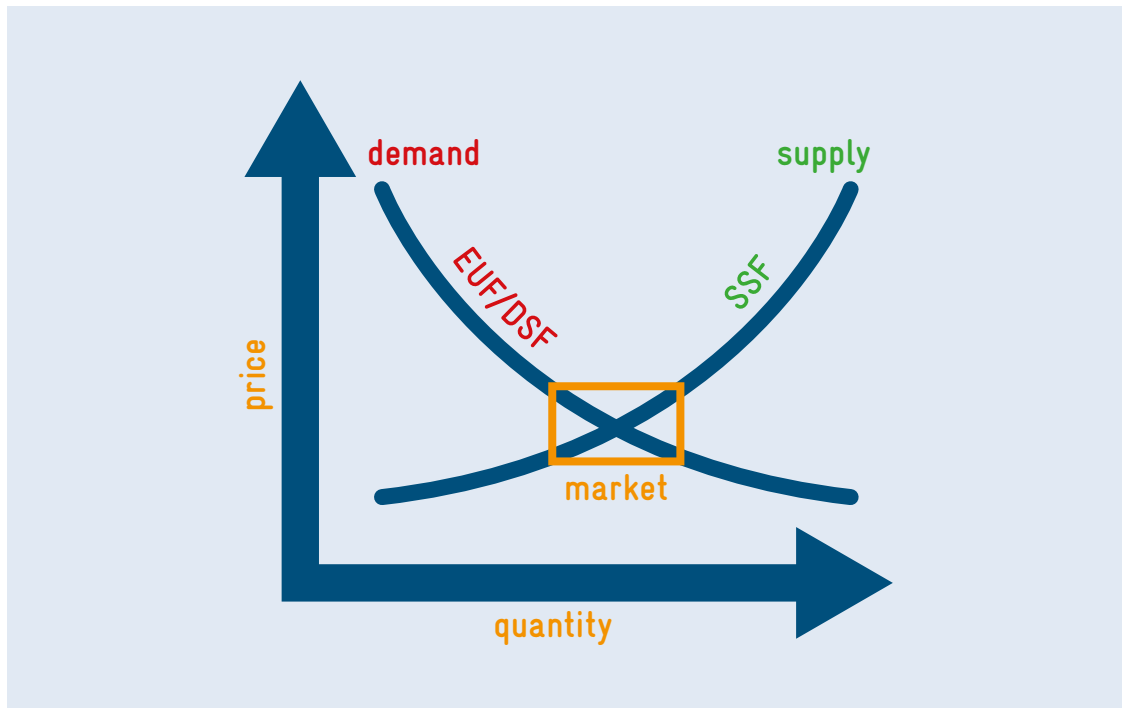
End-user financing often also referred to as “demand-side financing” (DSF) is a type of financing addressing end-users of a specific service or product with the aim to facilitate the meeting between demand and supply by intervening mostly on the “affordability” issue.

It is a form of financing mostly dealing with inelastic demand, such as the one of more vulnerable populations in the refugee camps, and it is usually complementary and/or alternative to more traditional “supply-side financing” (SSF).

It should be noted that while SSF usually intervenes directly both at “price” (e.g. subsidies on products) and “quantity” levels (e.g. financing to increase imports), EUF financing usually focuses on the “price” axis only (that is, making products and services cheaper), consequently having indirect benefits in terms of quantities that are made available on the market.

The most common use of EUF is through *end-user subsidies*, which are largely used in the development sector, especially in the humanitarian environment. However, end-user subsidies represent only one available mechanism of EUF, and many others exist. For the purpose of this study, we define EUF as financing that is offered directly to end-users, either in form of direct support or through one degree of separation, that is, the immediate lenders.

Figure 1: The positioning of EUF on markets



2.0.0 Definition of End-user Financing for this study

The scope of this study limits its assessment to EUF to **end-user market finance**, as opposed to end-user humanitarian finance, meaning the range of financial mechanisms and payment systems that are directly originated and implemented by humanitarian actors and are subject of another study commissioned by the client. Therefore, mechanisms such as subsidies and guarantees, that are typical of the development sector and not strictly of market finance, are not explored here.

2.1 How is End-User Financing Used

2.1.0 In General

EUF is on the other side of the finance spectrum compared to SSF, and it is often complementary or alternative to it. It is usually smaller in size, as it covers the needs of a specific user or a small group (e.g. group lending), rather than the needs of a whole supply chain (e.g. distributor of products). On the one hand, the (smaller) scale, together with challenges related to the lower capacity of final users to mobilise collaterals, especially in the target group of this study, frequently make EUF more expensive and difficult to implement. On the other hand, EUF is often more tailored and targeted to the needs of final users, hence allowing a higher degree of customisation, especially in frontier markets.

The supermarket metaphor

If markets can be assimilated to a supermarket, then a distributor with high capability to mobilise SSF could potentially move towards a situation of monopoly by winning over its competitors and push them out of market. As a result, final users might end up seeing their choice of products being narrowed down to those promoted by that specific distributor only. However, it needs to be noticed that SSF could also facilitate the entry of new players, if well designed.

On the contrary, a large amount of EUF increases the opportunities for final users to choose among products of different distributors, some of which were previously too expensive to be afforded. As a result, EUF could potentially increase market competition and diversity, instead of narrowing it. It can therefore be said that EUF is a more consumer-centric type of financing, which is extremely relevant in fragile environments where market dynamics are still at very early stage. Yet, it is most effective when combined with SSF to also address the supply side.

2.1.1 In the Development Sector

In the development sector, market dynamics are affected, both positively and negatively, by the involvement of development and humanitarian players. The two main instruments of support to market EUF provided by such players are subsidies and guaranteed funds. While the former can often be disbursed directly from the agency to the final user, and channelled through mobile money or vouchers, guarantees are usually passed onto financial service providers (e.g. microfinance institutions) in order to de-risk their intervention for the target group, and/or lower transactional costs of their offerings.

In general terms, there is a tendency from development players and humanitarian players alike to progressively move away from free cash handover towards more market-sustainable models.

2.1.2 In the Energy Sector

In the energy sector, EUF is primarily focused on increasing the affordability of energy products, such as improved cookstoves and stand-alone solar systems, or connection to mini-grids and payment of bills.

Given the low marginality of such energy products and their widespread diffusion in large numbers which make disbursing and monitoring a complicated and expensive practice, EUF in the energy sector is not as widespread as in other sectors, while SSF is more widespread.

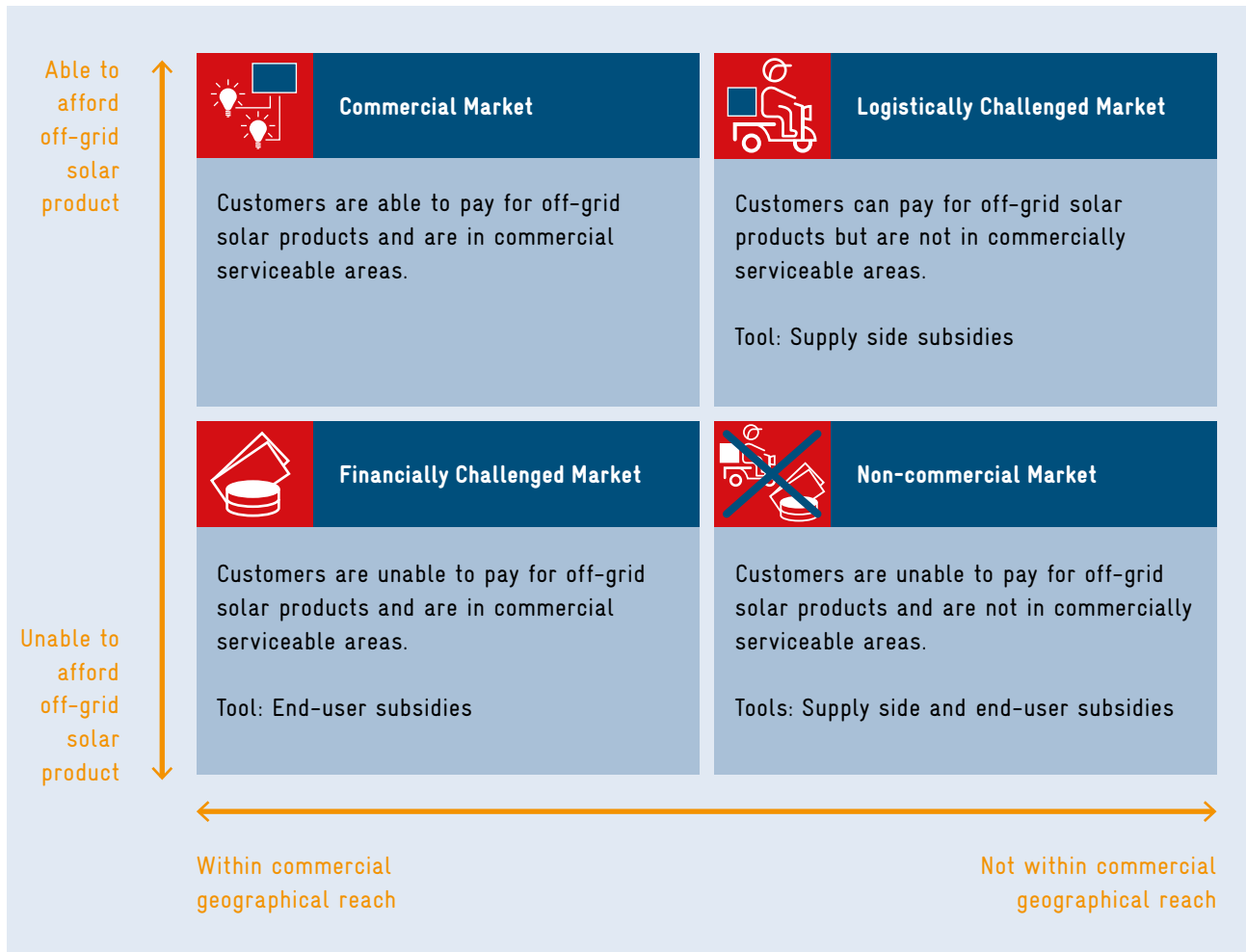
However, the sector is increasingly exploring EUF, with the specific goal to increase the affordability of certified and quality products compared to low-quality ones against which the market must compete, while leaving sufficient choice to final consumers.

GOGLA⁶, the global association for the off-grid solar energy industry, provides an overview of when EUF and specifically end-user subsidies could be beneficial to support energy markets.

Figure 2 below shows how end-user subsidies mainly address the issue of affordability, and less so the constraints related to the supply chain and their geographical reach, or at least not directly and not alone.

6 [End-User Subsidies Resource Centre | GOGLA](#). GOGLA claims to be the global association for the off-grid solar energy industry. It promotes, safeguards, and convenes the off-grid solar and appliance industry. Increasingly aware of the importance of EUF to boost the sector across the continent, in early 2021 the association created an "end-user subsidies resource centre", with the explicit goal to "bridge the affordability gap and enable millions of low-income households to access clean energy". The database, freely available on the internet, shares insights and resources for those exploring smart end-user subsidy design.

Figure 2: Positioning of end-user subsidies in energy markets (GOGLEA)



A useful and practical way of categorising EUF in the energy sector is through its main channels, and whether it directly flows through the Energy

Service Provider (ESP) itself, or a financial service provider or intermediary (FSP). As a result, disbursement models and tools are also affected.

Financing through the Energy Service Provider

The ESP, either directly or through its partners (e.g. manufacturer, supplier, etc.) usually provides

the following set of EUF services, depending on the context and product or service:

Table 1: EUF services of the ESP

RENTAL	CREDIT	LEASING**
Rental is a form of EUF allowing end-users to benefit from the use of an asset or a service for a mutually agreed period, without benefitting from its ownership. Due to the logistical challenges of having to deal with an asset for a long period of time in rural areas, rental is not as common as other forms of financing which provide for the transfer of ownership at some point in time.	Less common than credit through an FSP, also due to regulatory constraints, credit through the ESP usually involves the transfer of ownership of the asset from the ESP to the end-user, with the asset itself used as collateral for the period of repayment of the credit. Credit via the ESP is often cheaper than through an FSP, yet possible only under specific regulatory and financial circumstances.	Leasing is similar to rental, with the major difference being that in leasing, the ownership of the asset is often passed onto the final user. There exist various types of leasing, depending on national legislation: financial leases, hire purchase agreements, and operating leases, among others. Leasing can be seen as financing in between rental and credit, whereby risks are managed differently in terms of ownership transfer.

** Includes Pay-as-you-Go (PAYGO)

Pay-as-you-Go (also PAYGO) is not a financing model itself, but rather a payment system made possible by advancements in technology. PAYGO consists of a leasing model in which instalments are paid directly to the ESP through mobile money, agents, or scratch cards. Sometimes, an FSP is also involved. The value and duration of these instalments are agreed upfront between the ESP and the final user, with the aim to facilitate the uptake of innovative solutions whilst lowering the burden of large upfront payments.

Following the payment of all instalments, the end-user becomes the owner of the asset, and the ESP itself no longer has any right to it. Two of the main advantages of PAYGO are:

- In case of default of payments, the products can be deactivated remotely until the payment schedule is restored, hence providing a strong incentive for payment, as well as lower needs for Know Your Customer (KYC) practices and associated transactional and operational costs.
- The product itself can be used by the ESP as collateral on the lease by allowing the company to retrieve the system if the lessor stops paying. This is particularly relevant for low-income users with a lower capability to mobilise collaterals.

Financing through a Finance Service Provider

EUf sources run along a spectrum from more to less regulated. Other publications⁷ have used the terms formal, semi-formal and informal, but we found this separation too strict and not necessarily reflective of all the specificities of all three

countries. For purposes of this review, we have placed these actors along a gradual axis, acknowledging country differences in official terminology and context. Each of these actors provides a set of different EUf mechanisms and products, which are treated in more detail in the country-specific chapters.

Table 2: EUf through FSP

More regulated				Less regulated
COMMERCIAL BANKS	MOBILE PAYMENT PROVIDERS	MICROFINANCE INSTITUTIONS (MFIs)	SAVINGS AND CREDIT COOPERATIVES (SACCOs)	VILLAGE SAVINGS AND LOAN ASSOCIATIONS (VSLAs)
Commercial lenders with strict eligibility requirements, low penetration in rural and displacement settings, typically not lending small amounts.	Provide basic financial services such as checking accounts, loans and leasing, with various degrees of penetration and offerings depending on countries.	Often regulated, but usually with a higher level of flexibility than commercial banks. Focus on small lenders, often rural, and on short terms, with higher than usual interest rates.	Financing through members savings only and managed at local-level, benefiting from lower levels of regulation and offering small affordable credits to their members.	Groups of people in the same settings who save together and take loans from those savings. Often a self- or poorly regulated (on a government-level) form of financing. Includes Rotating Savings-and-credit associations (ROSCAs).

EUf from friends and family including remittances, self-help groups (SHG), whether in form of loans, gifts, or other forms, are placed in the far-right axis of informality. However, given the limited available literature and knowledge in the

sector, and the limited interest that operating at such high level of informality might represent for a donor or a development agency, this form of EUf is not addressed in this report.

⁷ Such as: "Navigating the Complexities of End-User Financing with FuturePump: An Innovator Case Study." Powering Agriculture.

2.2 Advantages and Disadvantages of End-User Financing

Compared to SSF, EUF presents a series of advantages and disadvantages which are discussed below.

2.2.0 Advantages

One of the main advantages of EUF is that it allows final users to increase **choice over products and services** available on the local markets, as long as they are eligible for support. This is particularly the case for high-quality, certified products that are usually beyond the financial capability of the final rural users. EUF is therefore demand-driven, and final users themselves can approach different ESP or FSP based on their specific needs and preferences.

By contrast, for SSF to be meaningful and effective, it usually needs to ensure that a certain amount of support is provided to each targeted ESP, hence limiting the number of players that can be supported at scale unless very large amounts to sustain a whole national industry can be leveraged.

This brings us to the second main advantage of EUF: **scalability**. Due to the strong fragmentation of users, even small interventions and budgets can make a difference in terms of impact, as EUF can be targeted to very small groups of users, often the most vulnerable ones. This is not often the case for SSF, since very small amounts hardly bring meaningful impacts across the value chain.

Finally, as mentioned and strictly linked to two aspects above, EUF is much more **flexible** to accommodate the needs of different types of users, by leaving them more choice and being more targeted in terms of user groups. This is particularly important in displacement settings, where interventions need to be extremely targeted to meet the need of specific groups of people often having different needs and characteristics of their surrounding host communities, and vice versa.

2.2.1 Disadvantages

The main disadvantages of EUF spur from the very same advantages mentioned above. Scalability and flexibility usually come at cost. Dealing with a heavily fragmented customers base, when compared to a limited number of players involved in the supply chain, is **expensive** both at transactional level (i.e. the cost to manage and process requests and financing for small amounts), and at interest level, due to the lack of collaterals of most final users (compared to provide financing to enterprises on the supply side).

As a result, especially for development players operating in the field of EUF, such a high level of complexity and fragmentation, even in terms of monitoring, is often delegated to and managed by a local FSP, which usually adds a level of **complexity** and cost to the overall operation.

Finally, as previously discussed in the report, EUF mainly addresses issues related to **affordability**, but it often fails to address other issues such as supply chain and logistical constraints, for which SSF is generally more effective.

2.2.2 In the Energy Sector

In the off-grid energy sector, there are two main obstacles to the implementation of EUF:

- Products and services in the off-grid space operate with **low marginality**. Hence, the high costs to set up and manage EUF often represent an important obstacle to its implementation.
- The level of **fragmentation and large numbers of potential consumers** in rural areas, often with neither credit history nor collaterals, make EUF even more challenging to attract operators, whether ESP or FSP.

3. EXISTING END-USER FINANCING AND PAYMENT SYSTEMS FOR RURAL AREAS

3.0 Kenya - Country Review

3.0.0 Supply Side Considerations

In Kenya, 70% of the population has access to electricity (91% urban, 62% rural). This translates to 15 million citizens still lacking access to electricity, with an estimated 91% living in rural areas.⁸ Around 36 million people in rural Kenya rely on fuel wood and charcoal due to a lack of access to clean cooking fuels and technologies.⁹

Affordability of energy products and access to financing play an important role in the uptake of clean energy solutions, especially when consumers are unable to raise the upfront cost of the products.¹⁰ This is where mobile money and its integration in financial technology can play a catalyst role, as it has happened especially in urban settings.

Result-based financing (RBF) has been proven successful for off-grid solar PV and improved cookstoves (ICS), especially in kick-starting the operations of ICS distributors. RBF provided incentives to support private sector actors to enter unknown markets. RBF, although not a form of EUF, has offered a safety net to carry out most of the market research and pilot programmes, thus creating market demand analysis. This, in combination with forms of EUF, has provided a hybrid financial system that creates an ecosystem that de-risks the private sector to enter the market.

3.0.1 Financing and Distribution Side Considerations

Mobile money and Digital financing

Kenya has one of the most mature digital credit markets in developing economies where traditional loans are now more integrated with digital platforms.¹¹ In Kenya, there are 67.77 million registered mobile money accounts (May 2021), all contributing to KShs. 536.69 million¹² total agent cash in/cash out.¹³ The success of mobile money and its associated products have been key factors in innovative financing for local communities in both urban and rural areas, also influencing the development of PAYGO models and technologies and their widespread implementation from retail electronic purchase to housing finance.

8 Energy Sector Management Assistance Program, *SDG7 Tracking Country Report Kenya (2019)*

9 Energy Sector Management Assistance Program, *SDG7 Tracking Country Report Kenya (2019)*

10 Lighting Africa - Women Initiative, *Financial Institutions role in the uptake of solar lighting In Kenya - Models, Challenges, Recommendations* (February 2013).

11 GSMA Mobile Money, Nika Naghavi *GSMA State of the Industry Report on Mobile Money (2020)*.

12 Equals to USD 4.8 Million as of 30th August 30, 2021 (Central Bank of Kenya).

13 As May 2021 from the *Central Bank of Kenya, Mobile payments data*.

This has resulted in mature and sophisticated mobile money platforms such as M-Pesa (Safaricom), Airtel Money (Airtel), and Equitel (Equity bank). Mobile money platforms and products have provided an avenue for innovative EUF products, ranging from large financial institutions to product distributors and manufacturers who integrated mobile payment platforms as a payment option. One such product is M-Shwari by Safaricom, which was founded in partnership with the Commercial Bank of Africa (CBA). It is a paperless banking service that allows M-Pesa subscribers to open a M-Shwari bank account and that offers two sub-products: Savings with Interest and Instant Loans. Through the system, savings in M-Shwari can be moved to M-Pesa at no charge and offers the opportunity to earn interests in the savings balance. Furthermore, M-Shwari enables access to instant microcredit loans on the M-Pesa account.

Mshwari: Instant Loans

A customer can access to a micro-credit product (loan) at a minimum of KSh 100 any time and receive their loan instantly on their M-PE-SA account. The loan amount is determined by one's savings, loan repayment behaviour and usage on Safaricom services payable within 30 days with a 7.5 % of the loan charged as a transaction fees.

Fuliza: Credit system

This is a credit product that allows a customer to to complete their Mobile money transaction when they have insufficient funds and it automatically deducted from your M-Pesa when cash is deposited. It is important to note that this is an over-draft service.

PAYGO

In Northern Kenya, particularly in Kakuma and Kalobeyi refugee camps, various forms of EUF can be found, with most being centred around PAYGO or financial providers, such as Saving and Credit Cooperatives (SACCOs) and Village Savings and Loan Associations (VSLAs) offering short-term loans. Energy product providers such BBOXX and d.light have PAYGO systems in place that could also use mobile money platforms but foresee the presence of localized sales agents who facilitate the initial application and down payment process. Monthly instalments are paid through mobile money (M-Pesa) or directly to the sales agents.

PAYGO has the potential to fill the energy gap in refugee camps, but adaptation to the business model is necessary (e.g., deposit on the system). This is particularly true if the aim is to balance the humanitarian mandate and private sector criteria. Some considerations should also be given to improvements of the infrastructure supporting mobile money payments for PAYGO, such as the availability of mobile networks. For instance, increased mobile network coverage would result in increased returns for mobile operators once refugees can recharge their phones at home through PAYGO Solar Home Systems. M-KOPA reported over 250,000 credit scores (92%) through the Central Bank of Kenya's Credit Information Sharing system. The financing of stand-alone energy products has been proven a gateway to a deeper and continuous financial history, providing digital payments and digital financial services to consumers to also include small business loans that can open up significant new economic opportunities and growth.¹⁴

14 Mastercard, Mikel Irkliewskij and Alexander Raia *Pay-As-You-Go and the Internet of Things: Driving a New Wave of Financial Inclusion in the Developing World* (May 2018).

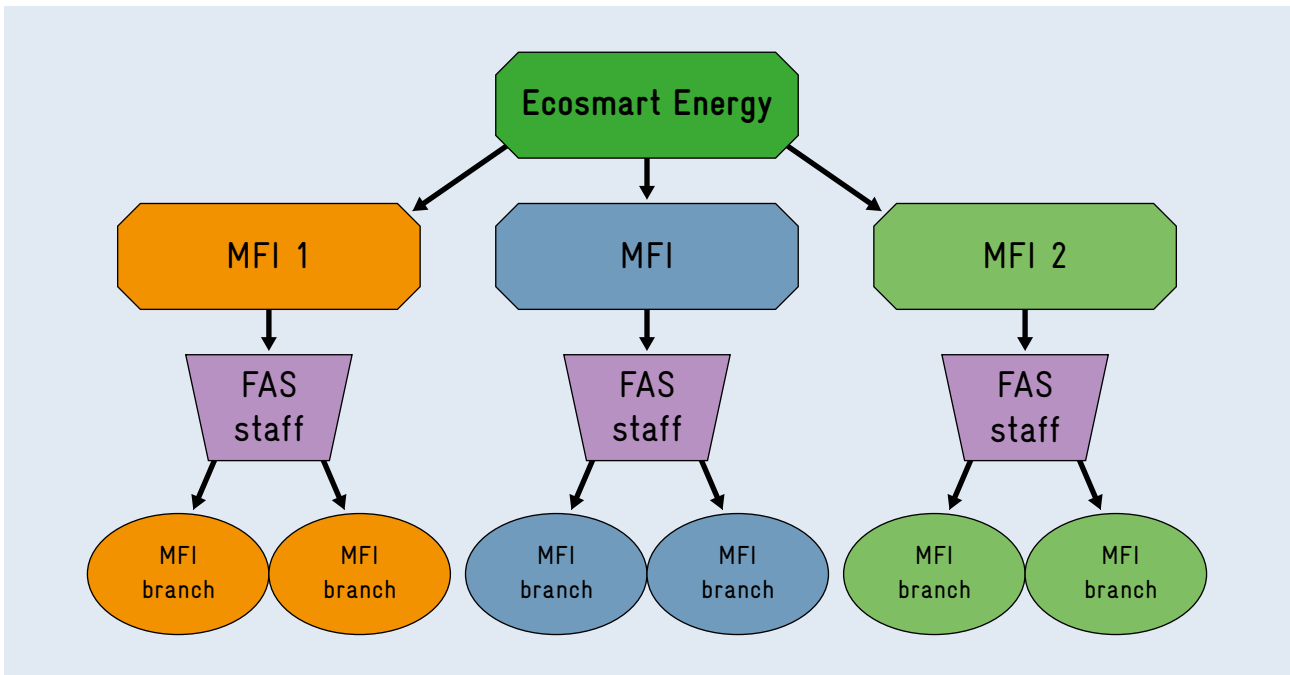
PAYGO technology has significant advantages in terms of helping consumers at the “bottom of the pyramid” to switch over to renewable energy systems, as they are accustomed to buying energy in small increments. Interestingly, PAYGO business models in Kenya are also associated with other technologies. For example, the Equity EcoMo-to Programme offers a specialized package for businesses that want to integrate renewable energy (e.g., solar pumping in agriculture).

Micro-finance Institutions

EUJ has been a part of the housing scheme in Kenya for decades with funds like Housing Finance (HF), and numerous banks and SACCOs have a housing mortgage scheme to increase access and affordability.¹⁵ This offers an opportunity to understand the modalities and the characteristics that need to be considered in developing an end-user financing product that is energy-centred.

Most microfinance institutions (MFIs) serve more women than men with their integration of SACCOs, VSLAs and women groups (chamas).¹⁶ This provides a strong entry point in targeting their women clients as solar product consumers and entrepreneurs. One case study is the Ecosmart Energy Model, an energy trading company of the Faulu Advisory Services (FAS), a subsidiary of Faulu Kenya Deposit Taking Microfinance Institution (FKDTM). Ecosmart uses the micro-finance model to sell its products in the market, where it signs partnerships with MFIs and uses the network of MFIs for sales. In line with this, Ecosmart works with the branch networks of the respective MFIs. Figure 3 below shows its operational structure and how the company engages MFIs.

Figure 3: Ecosmart Op. Model used by some MFIs (Faulu Advisory Services) Kenya



15 Acumen Fund, Aden Van Noppen, *The ABC's of Affordable Housing in Kenya* (2014).

16 Lighting Africa - Women Initiative, *Financial Institutions role in the uptake of solar lighting In Kenya - Models, Challenges, Recommendations* (February 2013).

Commercial banks

In Kenya, banks are heavily regulated by the Central Bank of Kenya, which is responsible for oversight and supervision, especially when it comes to interest regulation and financial products being offered.¹⁷ In Kenya, traditional banking is more prevalent in urban areas among workers with formal employment status. In most rural areas, some banks – including Cooperative Bank, Equity Bank, and KCB Bank – have extended their outreach offering EUF products such as asset loans and third-party financing.

In general, banks struggle to assess the creditworthiness of potential clients, as 61% of urban workers in Kenya are employed in the informal sector.¹⁸ This challenge becomes even more apparent in rural areas, where informal labour is widespread.

The Equity Bank's EcoMoto programme (Access to Clean Energy Initiative) has offered an option for a partnership between financial institutions and private energy-related companies (including Biolight, d.light, and Jikoka). This partnership removes direct contact between distributors and clients, as the products are acquired by the financial institution that absorbs the default risk. At the same time, this partnership offers a diversified choice to the clients, increasing their agency:

- Clean cooking stoves and loans to people through: a) mobile platform (Equitel, sim-card based for people without smartphone), b) EasyPay, a mobile app, c) cash-based for people without connectivity.
- Loans to access clean energy (OrbEnergy): a) for businesses, equity for businesses (e.g. schools), b) for households: 1 USD/week repayment is the average and repayment periods can be negotiated.

The EcoMoto Programme

Equity Bank, with support from IFC Lighting Africa Program II, launched the EcoMoto program with the goal of enabling poor households to access clean energy for lighting and cooking. Equity customers buy improved cookstoves, LPG, solar lighting systems and water purifiers through a simplified loan product that allows for instalment payments for as little as KSh 15 (0.13 USD) a day over a 12-month period. ([Lighting Africa, 2018](#)).

In 2015, MicroEnergy Credits signed an Emission Reduction Purchase Agreement (ERPA) with the Swedish Energy Agency to support Equity and the EcoMoto programme. This ERPA generates additional revenues for the EcoMoto Programme which is reinvested back into the initiative. Equity also partnered with development organisations for a results-based financing (RBF) programme, proceeds of which are reinvested in the clean energy agenda. As of October 2019, their partnership with over 1,000 EcoMoto Vendors has KSh. 250 million (2.3 million USD) worth of clean energy products to 55,000 households and recorded over KSh. 236 million (2.1 million USD) in household savings from switching to cleaner energy. ([Equity News, 2019](#)).

17 The constitution of Kenya, *Principle object of the Central Bank of Kenya*, Chapter 491 sections 4A (2018).

18 "Statistics on Informal Employment in Kenya," Women in Informal Employment: Globalizing and Organizing, Statistical Brief No., (May 4 2011).

3.0.2 Gender Inclusion in Access to Financial Services

In the 2020 Global Gender Gap Report, Kenya ranked 109 out of 153 countries, a decrease of 33 positions from the previous year.¹⁹ Predominantly, economic opportunities for Kenyan women are directly connected to small-scale farming, which does not represent a solid avenue for accessing financial services.

Indeed, only 36% of women have access to a bank account and less than 15% of female clients have access to capital funding from banks. Conversely, women represent more than 50% of the clientele of the ten of the top MFIs in Kenya and they are the main clients for VSLAs and SACCOs.²⁰ Interestingly, the Kenya Women Finance Trust (KWFT) Bank is set up to target mainly rural women, also through dedicated clean energy financial products.²¹

More generally, the International Finance Corporation (IFC) Lighting Global conducted a study to determine women's uptake of financial products specifically tailored for solar equipment. The study concluded that the majority of financial institutions that had experience in working with solar suppliers/distributors relied on only one distributor and product at the time, limiting the choice on the consumer side. An important underlying assumption is the fact that the market research involved in the selection of the distributor and product did not include women's perspectives as they are not considered to be the decision-makers, despite them being the primary user of the energy product. Moreover, the study highlighted how this approach was linked to a general lack of knowledge of quality products and, by consequence, trust in solar equipment. Additionally, the majority of financial institutions bundle the solar loans under asset financing or micro leasing loans, which are mainly tailored to a male clientele. These two factors (limited market analysis and access to regular financial services for women), tend to limit women's agency toward increased access to dedicated financial products for solar equipment.²²

Kenya Women Finance Trust (KWFT), Solar Portfolio

In 2006, KWFT started an ongoing energy programme by promoting solar home systems and LPG. KWFT is currently partnering with Suntransfer to supply solar lanterns to stockists as well as end-users in its network. Some of the major challenges observed are:

- ▶ Low quality of products available in the market results in high failure rates.
- ▶ Few reliable suppliers' availability, due to cumbersome logistics provisions resulting in unavailability of stock.
- ▶ Most suppliers are not interested in becoming part of a value chain, preferring in-bulk sales to institutions.
- ▶ Suppliers do not offer product guarantee, which affects trust in the sector.

19 World Economic Forum, Robert Crotti, Thierry Geiger, Veselina Ratcheva, and Saadia Zahidi, *Global Gender Gap Report* (2020).

20 Lighting Africa - Women Initiative, *Financial Institutions role in the uptake of solar lighting In Kenya - Models, Challenges, Recommendations* (February 2013).

21 Kenya Women Financial Trust, *Clean and Renewable energy loans* (2021).

22 Lighting Africa - Women Initiative, *Financial Institutions role in the uptake of solar lighting In Kenya - Models, Challenges, Recommendations* (February 2013).

3.0.3 Preliminary Challenges to End-User Financing in Kenya

Energy providers

PAYGO modalities present a high level of risk for medium-scale companies, including:

- Debunking the perception among ESPs that hard-to-reach clients do not have the willingness and ability to pay for energy products. Data needs to be collected and analysed systematically among last-mile clients and inform de-risking mechanisms conceived in collaboration with private sector actors.
- Short-term validity of Alien IDs issued to refugees that only allow them to register for mobile banking for three months at a time. This makes it difficult to track customers and create a payment history/credit score.
- Lack of diversification of PAYGO packages that address the ability to pay for different client segments.
- Logistics challenges to implement after-sales services within the warranty lifespan, as goods need to be transported to major cities with considerable transport costs. Some companies have deals in place for periodic bundled transports that reduce costs but do not guarantee a timely service.

Financial Institutions

Financial institutions, including Equity Bank, Cooperative, Faulu Kenya, Milango, and KWFT, have a growing interest in solar equipment. However, these institutions report some challenges around the implementation of dedicated financial services, including:

- *Cost of distribution:* Generally, when the financial institution acquires solar products from solar companies, it adds to it the cost of transporting to its clients - on average Kshs. 300 (3.5 USD). This makes the product more expensive, and discourages some would-be consumers.
- *Lack of consistent product supplies:* Since supply is not consistent and not able to satisfy demand when it emerges, potential clients get demotivated toward the purchase of the products.
- *Competition with substandard products:* Consumers find it difficult to assess the quality of a solar product due to a lack of technical knowledge. Because the majority of customers and entrepreneurs place a premium on price over quality, in particular upfront price, they frequently purchase low-quality goods. This raises the likelihood of solar lighting failure, establishing a negative precedent that solar lighting does not operate.
- *Microfinance lending methodology:* As for other non-solar products, MFIs that use a group lending approach face a barrier in spreading solar products to their customers. This is because good payers, even those with good repayment records, are significantly impacted if a group member is delinquent or in default; resulting in them being unable to get more financing from the MFI.
- *Lack of rural network of solar lighting service centres:* This makes it difficult and expensive for consumers to return faulty products; the majority of suppliers have service centres in Nairobi, making the procedure logistically difficult. In the long run, it erodes consumer faith in solar products, and many of them return to using kerosene or biomass. For example, an FI and a development partner disclosed during the Key informants' interviews that they were disappointed by solar suppliers for not responding to clients' grievances on time (solar lanterns repair or replacement).

Lighting Africa Programme

In 2009, World Bank and IFC launched the Lighting Africa programme, with the aim of providing modern lighting and energy products to 250 million people who currently live off the grid by 2030. Lighting Africa provides relevant business and technology training to women that can now participate in the renewable energy value chain as energy entrepreneurs. Specifically, Lighting Africa Kenya designed the Last Mile Entrepreneurs programme with the aim of strengthening women-owned energy enterprises by linking them with suppliers and financiers. The programme supports women with training to open the market at the bottom of the pyramid and meet household energy needs. The programme includes partnerships with MFIs that are encouraged to support the financial literacy of female clients, while supporting their efforts of becoming retailers of quality energy products.

3.0.4 Preliminary Conclusions on the Opportunities for End-User Financing in Kenya

While it is important to investigate innovative approaches to EUF, this report recommends a focus on scaling up initiatives that have been proven successful, such as the Kenya Off-grid Solar Access Project (KOSAP) in Kakuma and Kalobeyei. Through KOSAP, the Government of Kenya seeks to close the access gap by providing electricity services to remote, low density, and traditionally underserved areas of the country. KOSAP benefits from USD150 million of financing from the World Bank and supports the use of solar technology to drive electrification of households, enterprises, community facilities, and water pumps. The RBF component of the programme makes it particularly interesting to the scope of this report.

Gathering lessons learnt and working on scaling current successful activities will not only be resource-efficient but also require less level of effort in market analysis, testing and penetration. This can be accomplished by:

- *Public-Private-Humanitarian partnerships:* Refocusing on how these partnerships are formed and understanding the perspective of each stakeholder is essential. This is the case of KOSAP that works on energy access in remote areas. It is a collaboration spearheaded by the Kenyan government looking for energy products supply and Non-governmental organisations (NGOs) that facilitate EUF for energy. Multi-player partnerships (private sector, NGOs, FIs, humanitarian organizations and Government) can leverage what already exists while de-risking distributors and strengthening the ecosystem.
- *Inclusion of FIs* not only as investors but also as solution partners, who already have existing financial technology in other fields and can adapt them for use in energy access.
- *Intentional focus on women groups:* Women offer an entry point for most EUF especially as it relates to improving the quality of life domestically.

- *Promotion of the long-term benefits of EUF in regard to the quality of life and diversification of livelihood.* EUF application can be used as an agent to drive Productive Use of Energy (PUE) in agriculture and other economically viable activities. It can also promote the establishment and growth of small businesses both within energy-related value chains and in other business sectors.
- *Creation of a conducive ecosystem* that facilitates the growth of EUF in rural areas. Specifically for DS, providing avenues for easier access to pre-conditions required to gain EUF. This includes:
 - *Providing access to mobile phones and Sim cards* as this is the basis for mobile money and monitoring of payment systems.
 - *Working with Government agencies to offer longer valid Alien IDs*, to lessen the need to change mobile numbers.
 - *Standardising* and creating a framework for EUF products used in DS which offers protection to the consumer.

Kenyan Off-Grid Solar Project (KOSAP): "The Government of Kenya seeks to close the access gap by providing electricity services to remote, low density, and traditionally underserved areas of the country. The GoK intends to use USD150 million of financing from the World Bank to deliver the Kenya Off-Grid Solar Access Project (KOSAP). The Ministry of Energy (MOE), Kenya Power and Lighting (KPLC), and the Rural Electrification Authority (REA) will implement the facilities in 4 components over a 5-year period (2018-2023): **Component 1** – USD40M: Mini-grids for Community Facilities, Enterprises, and Households; **Component 2** – USD48M: Stand-alone Solar Systems and Clean Cooking Solutions for Households; **Component 3** – USD40M: Stand-alone Solar Systems and Solar Water Pumps for Community Facilities; **Component 4** – USD22M: Implementation Support and Capacity Building"

Source: <https://www.kosap-fm.or.ke/>

3.1 Uganda – Country Review

In Uganda, the energy access rate²³ was 29% in 2019, rising to 66% in urban areas and only 19% in rural areas. Uganda presents a huge market potential for alternative clean technologies to provide electricity such as solar PV systems. A recent study²⁴ estimates that there is market potential for solar PV in 5.3 million households. Over 60% of households lack access to electricity due to supply-side gaps, while the rest of the households have coverage but lack access due to demand-side limitations.

3.1.0 The Financing and Distribution Side Considerations of Energy Access Solutions

In Uganda, the total number of formal financial institutions (FIs)²⁵ includes 25 commercial banks, four microfinance deposit-taking institutions (MDIs), and three credit institutions, as of 2017. Additionally, although the last official census was carried out in 2007, anecdotal evidence shows that the country hosts around 300 non-deposit-taking MFIs, 4,000 registered SACCOs (of which 75% are dormant or inactive), and more than 70,000 self-help groups (SHGs). As dictated by the financial regulatory framework of the country, all these institutions are categorized according to a four-tier system, described in Table 3 below:

Table 3: Categorisation of institutions into a four-tier system – Uganda

TIER	ALLOWANCES
Commercial Banks	Are legally allowed to offer a complete range of financial services (checking, savings, as well as time deposit accounts for individuals and institutions). Commercial banks are also allowed to buy and sell foreign exchange, issue letters of credit and to provide loans to depositors and non-depositors.
Credit Institutions	Are authorised to take deposits and establish savings accounts, although they cannot provide checking accounts or trade in foreign currency. Credit institutions are also allowed to provide collateralised and non-collateralised loans to savings and non-savings customers.
Microfinance Deposit-Taking Institutions (MDIs)	Are authorised to take in customer deposits and establish savings accounts, as well as provide loans to savings and non-savings customers. On the other hand, MDIs cannot establish checking accounts or trade in foreign currency.
Non-Deposit Taking Financial Institutions	Are authorized to offer collateralised or non-collateralised loans to their clients but cannot take in customer deposits or establish savings accounts. Types of financial entities that fall in this category include MFIs, credit-only NGOs, and SACCOs. In 2016, these institutions started being regulated by the Tier 4 Microfinance Institutions Act and Moneylenders, to limit predatory lending practices and to build confidence in the system with a view to promoting financial inclusion. This tier is the only one among the four that is not regulated by the [Central] Bank of Uganda (BoU): the legislation places large and medium-sized SACCOs and all non-deposit taking MFIs under the supervision of the newly established Uganda Microfinance Regulatory Authority.

23 <https://www.iea.org/reports/sdg7-data-and-projections/access-to-electricity>

24 Aarakit, Ssenono and Adaramola (2021), Estimating Market Potential for Solar Photovoltaic Systems in Uganda, <https://www.frontiersin.org/articles/10.3389/fenrg.2021.602468/full>

25 <https://www.bou.or.ug/bou/bouwebsite/Supervision/supervisedinstitutions.html>

If we look at the energy landscape in the country, there are eight electricity distribution companies in Uganda: Umeme Limited (considered the most important), West Nile Rural Electrification Company (WENRECo), Uganda Electricity Distribution Company Limited (UEDCL), Bundibugyo Electricity Cooperative Society (BECS), Kyegegwa Rural Energy Co-operative Society (KRECS), Pader-Abim Community Multi-Purpose Electric Co-operative Society (PACMECS), Kilembe Investments Limited (KIL) and Hydromax.²⁶

There are more than 70 providers of off-grid energy solutions in Uganda,²⁷ with the SHS market dominated by Engie (Fenix International), M-Kopa, Solar Now, Bright Life and Village Power.²⁸

The primary barriers limiting the scale up of the SHS market include:

- Access to capital for operators: An estimated US\$1.4 billion is needed to contribute to countrywide access by 2030.²⁹
- Limited affordability of SHS products: approximately 73% of the population is not served by these products and cannot afford systems at a daily rate of US\$2-3.³⁰
- Inconsistent application of taxes and exemptions, and limited customer awareness on the quality of systems and providers.

The improved stove market is composed of multiple small players, many of whom double as manufacturers and suppliers. One such company is Ugastove, which doubles as a manufacturer, and dominates the market in central districts, while

Up Energy dominates in the North and Eastern parts of the country. Western Uganda is dominated by BM Energy, while International Lifeline Fund (ILF) is another big supplier that also doubles as a manufacturer.³¹

The price of the improved cookstoves appear realistic when compared to the production and distribution costs. However, conversations with the retailers reveal that the users find them expensive, especially due to the fact that alternative stoves (over 5 times cheaper) are available on the market.³²

3.1.1 Demand Side Considerations

From the in-depth research performed by the Consultant for UNCDF in rural Uganda,³³ we can extract an interesting perspective from the three main end-user profiles (summarized below) regarding financial services, which mainly include savings and loans. The figures provide orders of magnitude (samples are not representative) and are coherent with the FinScope study performed in 2018 by Financial Sector Deepening in Uganda (FSDU).³⁴

Typically, **women in rural areas** aspire to adequately provide for their families and secure their long-term futures. Considering Uganda's high literacy levels (74% of the adult population), many rural women are literate, but cannot speak English or Luganda (one of Uganda's major languages) and are more likely to share ownership of a phone—or not even own one—compared to their male counterparts.

26 ERA (2020). *Uganda Electricity Sector's Overview*.

27 Uganda Off-grid Market Accelerator UOMA (2020), *Off-grid energy in Uganda, Market Map*.

28 Uganda Off-grid Market Accelerator UOMA (2018), *Mapping the Ugandan off-grid energy market*.

29 SEforALL (2019), *Taking the pulse of energy access in Uganda*.

30 UNCDF (2020), *Digital finance for energy access in Uganda*.

31 UNDP (2020), An energy audit experiment to promote, renewable energy in large institutions and households, <https://www1.undp.org/content/dam/uganda/docs/2020/undp-ug-Energy%20Audit-%20Draft%20Report-2020.pdf>

32 RHAMZ International (2020). *An energy audit experiment to promote renewable energy in large institutions and households, draft report*.

33 UNCDF (2016), *Customer profiles to improve reach of MTN mobile savings and loan product in rural Uganda*.

34 Financial Sector Deepening in Uganda – FSDU (2018). *FinScope Uganda Survey Report 2018*.

The aspirations of **small-scale farmers** are centred on financial security and stability, particularly during the agricultural off-season. Their levels of literacy vary, but men are more likely to be literate than women. There are an estimated 2.5 million small-scale farmers in rural Uganda, and they are dedicated to farming and diversifying their crops to ensure year-long yields; whilst a few engage in other income-earning activities to supplement their farming. Principal saving methods include; mobile money (36%); savings groups (28%); keeping savings at home (11%); buying livestock as a saving mechanism (9%); and saving in banks/MFIs (8%). Savings are mainly used to offset expenses related to farming, emergencies, school fees, and bills. 42% take loans mainly from savings groups because they can access them quickly and without paperwork, while 6% borrow from banks/MFIs (this group cites collateral requirements as a drawback to these loan products). Whilst loans are primarily taken to boost agricultural productivity, pay school fees, and cover medical and family emergencies.

Micro-entrepreneurs aspire to expand and diversify their business enterprises, which are typically informal. They are mostly literate and are the most diverse of these three groups, situated in rural and peri-urban areas. Principal saving methods are mobile money (36%), banks/MFIs (35%), savings groups (15%), and keeping savings at home (12%). Mobile money is mainly used for saving small amounts for shorter periods because of its simplicity and ease of access. Savings are mainly used for large purchases, future use, education (school fees), bills, transportation, and family emergencies. Extra income is reinvested in the business. They mainly acquire loans from saving groups (23%), banks/MFIs (20%), and money lenders (3%) to expand their business, purchase supplies and pay for emergencies. Valued attributes include, quick loan processing, longer loan duration to realize returns on investment (three months and above,) and tailored loans for entrepreneurs with lower interest rates. Micro-entrepreneurs are knowledgeable on financial service products at their disposal, hence awareness drives action.

3.1.2 Gender Inclusion in Access to Financial Services

In Uganda, only 46% of the banked population are women³⁵ and only 14% of rural women have bank accounts. Instead, their main methods of saving are through saving groups (25%); mobile money, if they have a mobile phone (23%); keeping money at home (15%); and purchasing live-stock to resell when there is need for funds (6%). Mobile money is particularly valued due to the PIN security (providing independence from their husband) and convenience of access to money at any time. Many rural women are credit averse and fear the consequences of defaulting on payment, more so with formal institutions. Only 27% of women take loans, mostly from saving groups or from family/friends, and 5% of them borrow from banks/MFIs. The main reasons for taking loans are family and medical emergencies, school fees, and daily household expenses.³⁶

3.1.3 Preliminary Conclusions on the Opportunities for EUF in Uganda

People in rural Uganda have limited purchasing power and their main sources of revenue (agriculture-related) are highly dependent on the changing environment. At the same time, many of them possess coping mechanisms when faced with large upfront investments (for farmers and micro-entrepreneurs) and small sums to be paid regularly (e.g. to ROSCAs and VSLAs). They have also demonstrated the capacity to access energy services.

35 Financial Sector Deepening in Uganda – FSDU (2018). *FinScope Uganda Survey Report 2018*.

36 UNCDF (2016), *Customer profiles to improve reach of MTN mobile savings and loan product in rural Uganda*

During our interviews, representatives from FINCA and Vision Fund recognized that loan repayment rates are often better for refugees and host communities than national averages. However, the UNCDF representative also highlighted that whilst the entry of FSPs into the refugee sphere (sometimes linked to the Cash Transfers Assistance (CTA)) brought perspectives, they are not yet proposing services adapted to the specific requirements of the refugee settings, especially regarding identities, business and registration of associations, and collaterals.

The EUF demand is still limited by the lack of clear business cases for PUE for micro-entrepreneurs and farmers. The formal financial services (from banks and MFIs) will not help in this matter, as they all require a sound business case to authorise a loan. FSPs currently have more pressing priorities such as handling the COVID-19 situation. From one of the interviews (Solar-Now), it was found that FSPs established before

COVID-19 have not experienced great success, which is likely linked to the limited demand, and to the conservatism and the lack of innovation capacity from the banks.

The EUF demand for energy access could be driven by women, who are mostly credit adverse. A possible solution would be to develop saving-based products through VSLAs and mobile money. Most communities have a strong sense of closeness, typically demonstrated through trust and social support, especially for financial matters. Thus, it is not a surprise that most of them are part of SACCOs, VSLAs and ROSCAs (in parallel, however, they make use of more formal EUF services namely those provided by mobile money operators, MFIs and banks).

Finding collaborative EUF solutions that incorporate more informal/village EUF mechanisms is an avenue that different sectors have started to explore with a lot of hope and some successes.

The FAO highlights key enabling elements to foster the financial inclusion of rural youth in Uganda:

- ▶ Leverage the potential of Youth Savings Groups and solidarity lending, since they can be an essential entry point to provide financial services and mitigate lending risk.
- ▶ Expand the range of available options in terms of digital financial offers, such as mobile payments.
- ▶ Develop new lending approaches that do not exclusively rely on traditional collateral, since young entrepreneurs often lack “conventional” forms of guarantees that are required.
- ▶ Foster the expansion of agent banking in the country, which will allow FIs to extend their outreach to rural youth.

Formal FSPs have supported saving and loan groups for decades: this is the funding model of a number of MFIs (e.g. BRAC, FINCA), as maintaining group cohesion became difficult under the financing options developed (through mobile money and some banks) in urban areas. Moreover, adapting their model to rural areas has proven to be too costly so far. Formal FSPs are fine-tuning their model to increase independency for their clients to access services without the need of physical branches and/or agents.

The ESPs interviewed as part of this study, such as d.light, heavily rely on local community officers and agents. D.light for example are developing their approach towards SACCOs by proposing training and commissioning to sell and maintain energy access solutions. This is also the approach selected by PHB and Brightlife to implement a solar-powered hatchery and poultry farming with USAID funding (through the SCC and GIZ/ EnDev coordination) in Kiryandongo. The nearby after-sale has been repeatedly identified as a key success factor by the ESPs we interviewed.

We can thus identify the main options for adapted financial services for energy access in rural areas:

- For PUE, considering that some business cases are proven and known, the EUF through loans can be provided by FSPs and SACCOs.
- For household use and small businesses, the PAYGO model is still valid and can be efficiently distributed and maintained by SACCOs and related groups and VSLAs. For example, in Uganda, fuel-efficient cookstove manufacturers, like Eco Group and Biolite, have also started to integrate lock-out and mobile payments technologies with their stoves to offer their products on a PAYGO basis.³⁷

Lastly, it is worth highlighting that the introduction of Agent Banking in 2017 significantly multiplied, by more than ten, the points of bank services around the country, a progression that can significantly benefit both banks and ESPs. At the same time, ESPs have developed a strong capacity to use their data to identify the defaulters, and up-sell extensions to the regular payers. ESPs will certainly benefit from connecting to and/or developing a credit bureau to limit their risks and improve their financial efficiency.

3.2. Ethiopia – Country review

Ethiopia's energy supply in 2018 originated for 89% from unsustainably grown biomass fuels and waste.³⁸ The same percentage of the overall yearly energy consumption was represented by the residential sector.³⁹ Electricity access in the country stood at 45% in the same year, 32% in rural areas, among the lowest rates in the region.⁴⁰

Hence, targeting the rural residential sector, both in biomass and biomass-substitutable sectors, as well electricity, is key to improve the current country energy sector.

37 UNCDF Better than Cash, 2017 UNCDF Better than Cash, 2017

38 Energypedia. (2021, May 19th). Ethiopia Energy Situation. Retrieved from Energypedia.info: https://energypedia.info/wiki/Ethiopia_Energy_Situation

39 IEA. (2021, May 19th). Ethiopia. Retrieved from IEA.org: <https://www.iea.org/countries/ethiopia>

40 The World Bank. (2021, May 19th). Access to electricity (% of population) – Ethiopia. Retrieved from Data.Worldbank: <https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=ET>

3.2.0 The Supply Side Considerations of Energy Access Solutions

Like many countries in the Region, Ethiopia is a net importer. Ethiopia faces a growing trade deficit with total imports increasing on average by 12.5% per year during the previous 10 years. The rise in the trade deficit has been driven by rising imports, which ballooned from USD3.6 billion in 2010 to USD15 billion in 2018/2019.⁴¹

Compared to other countries with floating currencies, however, the Ethiopian birr is a non-convertible currency, and private sector allocation to foreign exchange (U.S. dollars) is determined by the National Bank of Ethiopia (NBE). The NBE operates within the context of a large trade deficit and the need to meet sovereign debt obligations stemming from government infrastructure projects funded by foreign debt, which enjoy priority in the allocation of foreign currency.

As a result, the availability of foreign currency for imports is extremely scarce in the country, further exacerbated by the decline of international exports due to COVID-19 shock, as well the worst locust invasion in decades and an internal conflict in the north of the country which have impacted heavily the production of agricultural commodities.⁴²

While the Ethiopian Growth and Development Plan II for the period (2015-2020) aims at decreasing imports by boosting the domestic manufacturing industry and encouraging exports,⁴³ the main impacts of the strategy are still to materialize.

For the solar PV sector, which heavily depends on imports for its components due to the lack of a sufficiently strong and competitive manufacturing and assembly industry, not being able to access forex hinders the capacity of players to operate.⁴⁴ In 2021, importers and distributors of solar lamps and kits wait on average between 12 and 18 months to obtain forex from the NBE to import one or two containers worth of products or components to operate on the national market. This bottleneck is less constraining for the cooking industry, as manufacturing is mostly national with local materials.

3.2.1 The Financing and Distribution Side Considerations of Energy Access Solutions

Ethiopia could potentially address such a major constraint as forex by attracting international investors capable of bringing forex into the sector. However, the current investment regulation reserves wholesale and retail of products and services to domestic investors only, with the only exception of e-commerce⁴⁵ and those companies that manufacture and/or assemble locally, which can then wholesale. Yet, with a positioning of 160th out of 190 countries in 2020 on the “Ease of Doing Business” of the World Bank,⁴⁶ Ethiopia has not yet succeeded with attracting a large number of investments, to date.

41 International Trade Administration. (2021, May 19th). Ethiopia – Country Commercial Guide. Retrieved from International Trade Administration: <https://www.trade.gov/country-commercial-guides/ethiopia-market-overview>

42 The World Bank. (2021, May 19th). The World Bank Retrieved from Ethiopia – Overview: [https://www.worldbank.org/en/country/ethiopia/overview#:~:text=Ethiopia%20aims%20to%20reach%20lower,to%20COVID%2019%20\(coronaviruspandemic](https://www.worldbank.org/en/country/ethiopia/overview#:~:text=Ethiopia%20aims%20to%20reach%20lower,to%20COVID%2019%20(coronaviruspandemic)

43 Federal Democratic Republic of Ethiopia. (2015). Ethiopia Growth and Transformation Plan II. Addis Abeba: Federal Democratic Republic of Ethiopia

44 Power Africa (2019). Off-grid Solar Market Assessment – Ethiopia. Addis Abeba: Power Africa

45 The Federal Democratic Republic of Ethiopia. (2020). Investment Regulation No. 474/2020. Addis Abeba.

46 The World Bank. (2021, May 19th). Ease of Doing Business. Retrieved from the World Bank: <https://www.doingbusiness.org/en/rankings>

Loans in foreign currencies are allowed, yet extremely difficult. The NBE needs to approve any loan disbursed in foreign currency, as well as repatriation of repayments. And since transactions in foreign currencies are not allowed in Ethiopia, repayments can only be in ETB. However, as the standard period between the repayments and the repatriation of instalments currently stands at about 12 months, and the inflation in the country equaled to more than 20% in 2020,⁴⁷ it becomes impossible for any foreign lender to realistically enter the market.

With the specificity of cooking energy systems, the market is affected by very low-profit margins, limiting the interest in investors and lenders in the sector. This is further exacerbated by the fragmentation of manufacturers, which mostly operate at informally and artisanal scale and cannot mobilize sufficient collaterals, nor provide a realistic growth outlook

The DBE-WB facilityThe DBE-WB is widely acknowledged as the most impacting initiative in the Ethiopian off-grid energy sector to date. It provided loans in USD to importers, whose repayment in Ethiopian Birr (ETB) was then channelled through MFIs to provide end-user financing for the purchase of solar kits (not a single mini-grid developer applied for it, and few cooking providers applied, but were not able to raise sufficient collaterals).

It was split in two phases of 20 million USD each, with all funds being allocated. A new phase is currently under appraisal. The second phase mainly aimed at lowering the collaterals requirements, considered to be too high by most applicants. This was quite considered a successful move.

One of the main criticisms of the programme, however, was that applicants could make only one loan request per programme phase, and collaterals had to be mobilised accordingly. For importers that rather prefer importing small quantities on regular basis, and therefore make request for smaller loans over time, this was considered a hefty entry ticket.

47 Statista. (2021, May 19th). Ethiopia: Inflation rate from 1986 to 2020. Retrieved from Statista: <https://www.statista.com/statistics/455089/inflation-rate-in-ethiopia/>

3.2.2 Preliminary Conclusions

The following chapter provides an overview of the opportunities for EUF in Ethiopia.

However, as quickly discussed in this introduction, it is believed that especially for PV solar products and services, the major constraint is at the supply financing level, rather than at the EUF level. Hence, unless EUF could be theoretically (current law prevents this) provided in forex and transferred to the distributor to allow him/her by means of forex payments to increase its import capacity, we fear that EUF might fail to deliver.

Different considerations apply to cooking energy systems where sourcing and manufacturing are mostly national, hence limiting needs in forex. In this case, EUF might stimulate demand and manufacturing, provided distributors can access further financing to scale up and formalize operations, hence increasing margins.

3.2.3 Main Payment Systems and Sources of End-User Financing

Leasing through PAYGO

On the EUF side, some retailers have been testing leasing through PAYGO models over the last years, especially in the solar kits' space. A notable example is the one of HelloSolar, in collaboration with Hello Cash.⁴⁸

However, the financial regulatory framework in Ethiopia is very conservative as for which players can provide financing to final users, leaving retailers in a grey zone of legality.

On top of that, the fiscal law is also not conducive to such offerings, for instance by requiring the retailer to pay the totality of the VAT upfront, putting a liquidity burden on the already under-capitalised small national players.

⁴⁸ Shell Foundation. (2020). *HelloSolar – March 2020 – Learning Report*. Shell Foundation

Mobile money (as technology provider)

Mobile money is still a very nascent sector in Ethiopia, and national uptake is among the lowest in the region, with an estimated less than a million active users.⁴⁹ One of the main reasons being that until recently, the mobile money sector was strictly regulated by the NBE which only granted licenses to national financial institutions to operate in the mobile money space, in concertation with the Ministry of Communications and Information Technology (MCIT).⁵⁰

HelloSolar (HS)

HelloSolar (HS) is a solar energy solutions distributor in Ethiopia, operating on a Pay-as-you-go model, using HelloCash mobile money service provider as the payment solution. HS was born in 2018 through the initiative of the founders of BTS Technology Solutions PLC (BTS), with support from Shell Foundation, DFID and USAID.

⁴⁹ IFC. (2019). *IFC Mobile Money Scoping – Ethiopia*. IFC

⁵⁰ National Bank of Ethiopia. (2012). *Licensing and supervision of the business of financial institutions – Regulation of Mobile and Agent Banking Services*. NBE.

As a result, while in other countries in the Region mobile money services providers are often the same as the Telco companies, offering basic financial services under more permissive ICT regulations, in Ethiopia the two main service providers, M-Birr⁵¹ and HelloCash,⁵² are ICT service providers which operate at the interface between final users, and their partner commercial banks and MFIs. This multi-layered set-up limits the range and flexibility of players to respond effectively to the users' needs, with the consequence that mobile money in Ethiopia is currently mostly limited to money transfer among people, less so for commercial transactions.

At the time of this assessment, it was found that only a few energy products and services' distributors make use of such platforms to promote PAYGO products on their own financing, preferring MFIs as traditional channels. For that reason, companies such as M-Birr are focusing more on supporting MFIs to improve their collection system through their services, rather than focusing on final users.

With the aim to boost the penetration of mobile money, however, the Government of Ethiopia has since 2020 started a restructuring process of the sector, allowing nationally-owned non-financial institutions to start offering mobile money services to boost non-cash payments in the country.⁵³ As a result of this directive, Ethio telecom, the monopolistic Ethiopian telecommunication company, has launched in May 2021 its own mobile money service.

Microfinance Institutions

Micro-finance institutions are extremely well established in Ethiopia, covering the quasi-totality of the country. There are 35 MFIs in the country, of which 7 large ones that are Government-owned (almost one per region), and several small private ones.⁵⁴

The role of MFIs in the distribution chain of solar products in rural areas

MFIs remain the preferred partners of solar kits' distributors in rural areas, due to: i) their existing high penetration and customers relation in rural areas; ii) their relatively low default rate on payment collection (around 4%, compared to 20%+ of those companies that tested PAYGO on their own funding); iii) their experience in providing end-users financing.

However, more and more distributors are now exploring ways to bypass MFIs to reduce end-user prices.

Especially with regards to the Government-owned MFIs, these have historically been supported by the state and the National Bank as vehicles of financing and development initiatives in the rural areas of the country. As a result, these MFIs are often very state-centred and bureaucratic. In addition, several years of Government financing resulted in some of these institutions now only focusing on larger ventures, hence slightly moving away from their original mandate to serve final users, as well as being heavily capitalised to the extent that some of them are now converting in commercial banks.

51 MBirr. (2021, May 20th). MBirr. Retrieved from MBirr: <https://www.mbirr.com/>

52 BelCash. (2021, May 20th). Hello Cash. Retrieved from BelCash: <https://www.belcash.com/helloservices>

53 National Bank of Ethiopia (2020). Licensing and Authorisation of Payment System Operators Directive No. ONPS/02/2020. Addis Ababa. NBE

54 AEMFI. (2021, May 20th). Association of Ethiopian Micro-Finance Institutions. Retrieved from AEMFI: <https://aemfi-ethiopia.org/j/>

A common practice for energy retailers, however, is to wholesale their products to MFIs. These institutions usually also take care of distribution, financing and even after-sales service, backed by a financial guarantee of the wholesaler. While this model allows for quick scalability and return on the investment for the operators, it does come with some concerns in terms of quality of service offered by MFIs that mostly operate in different core businesses.

On the other side, several private MFIs are being increasingly acknowledged as preferred partners by SMEs active in the energy sector, due to their increased flexibility and dynamism when compared to Government-owned MFIs. These MFIs, however, can only finance themselves through the savings of their clients, with limited or no support from the central government, making them small in size and financial capability.

It must be noted that all the above considerations relate to the quasi-totality of solar kits, as distributors of cooking solutions operate at very low margins, which limits their capacity to engage with intermediaries or external service providers.

Village Savings and Loan Associations (VSLAs)

Although 62% of Ethiopians reported saving money in 2017, only 26% saved formally at financial institutions, while 38% saved with a person outside of a family or at an informal saving. During the same period, 50% of Ethiopians said they borrowed money, but only 11% borrowed from financial institutions. The rest borrowed from family or friends (31%) and 8% borrowed from a saving club (8%).⁵⁵

VSLAs in Ethiopia are critical to enabling rural dwellers living in poverty to increase their financial skills, gain access to and control over resources, and generate economic opportunities and income which in turn contribute to poverty reduction and women empowerment.

VSLAs are usually formed with a self-managed group of 20-30 individuals that meet on a regular basis to provide its members with a safe place to save their money, access loans, and obtain social or emergency insurance coverage. It is common that each member contribute a specified amount of money to a savings pool and after a certain amount of capital has been accumulated, the accumulated fund becomes a readily accessible source of credit for members.

Rotating Savings-and-credit associations (ROSCA), also known in Ethiopia as *ekub*, are a form of VSLA that allow members to access credit through a mechanism that pools contributions from members each week and disburses the pot to the winner of a lottery, with each member winning once over the scheme's term. These are informal mechanisms, hence not regulated by law.

Compared to other developing countries in which ROSCAs are often assumed to serve the poor, in Ethiopia these mechanisms are used across the income scale. Some have hundreds of members, with officers who vet applicants and analyse risks. ROSCAs are considered to be the most common source of external funding for manufacturing firms in Addis Ababa, Ethiopia's capital, with more than two-thirds of small and medium-sized enterprises that used them between 2002 and 2010.⁵⁶

55 The World Bank. (2021, May 20th). Financial Inclusion in Ethiopia: 10 takeaways from the latest Findex. Retrieved from the World Bank Blog: <https://blogs.worldbank.org/african/financial-inclusion-in-ethiopia-10-takeaways-from-findex-2017>

56 The Economist. (2021, May 20th). What self-help says about Ethiopian Banking. Retrieved from the Economist: <https://www.economist.com/finance-and-economics/2019/04/04/what-self-help-lending-says-about-ethiopian-banking>

Part of their success lies in the trust between members, who tend to be from the same neighborhood, workplace, or ethnicity. Since many small businesses have patchy records and no credit rating, Ethiopian banks demand interest rates of up to 20% and physical collaterals of up to three times the value of the loan. Most ekubs, by contrast, require at most a character testimony, or nothing at all when organised amongst friends, business partners and colleagues in which repayment is guaranteed by social collaterals.

A major issue is that ROSCAs are no substitute for formal financial institutions, since members cannot predict when they will be the winner and get a payout. However, it is reported that often the initiators and administrators of ROSCAs benefit from the first round of payout, which then justifies the start-up of such initiatives by those in need in the first place.

Saving and Credit Cooperatives (SACCOs)

Saving and Credit Cooperatives (SACCOs) are similar to ROSCAs, with the advantage of being legally recognized and provide a more structured approach to the sector. It is estimated that as many as 18,000 SACCOs exist in the country.⁵⁷

sSACCO can be either rural (RuSACCOs) or urban (UrSACCOs), with the former mostly focused on savings accounts and loans, and the latter also providing additional services, including third-party employment.

Compared to MFIs, SACCOs offer on average lower interest rates and require less collaterals, leveraging on trust and reputation, similarly to ROSCAs. Another similarity is that SACCOs only rely on the savings of its members, making them poorly capitalised.

Commercial banks

Commercial banks in Ethiopia are heavily regulated and centralised under the aegis of the state-owned National Bank of Ethiopia, and with an over-representation in Addis Ababa, which leaves most part of the country under-served.

As all commercial banks are national, with no possibility to finance themselves internationally, Ethiopian banks are in general small in size with limited financing capability, including a serious shortage of supply of forex available for their customers.

Loan collaterals range between 100 and 130%, making access to financing relatively difficult for rural people. During the interviews, it was found that a very poor due diligence process for creditworthiness assessment is carried out by banks, privileging asset-based loans rather than project-based financing.

3.2.4 Gender Inclusion in Access to Financial Services

The gender gap in financial inclusion in Ethiopia is significant and widening.

In 2017, 41% of men had a bank account, compared to 29% of women, whereas in 2014 account ownership was essentially even. The main reason of this widening gap is linked to the fact that financial inclusion over the last few years seems to mostly have affected men, with a threefold increase of account ownership in three years, compared to only 8% for women.⁵⁸

57 Entreprise Partners, (2017). Digital Financial Services (DSF) – Market Strategy

58 The World Bank Group. (2019). Ethiopia Gender Diagnostic Report: Priorities for Promoting Equality.

Among the main reasons behind such a growing gap are the wider social constraints associated with intra-domestic negotiations and the social status of women that limit the greater impact of financial inclusion on the empowerment of women.⁵⁹ For instance, women are less likely to own and control physical assets that serve as collaterals. Furthermore, on average, women have lower levels of human and social capital which, in turn, can decrease their eligibility for formal credit. This puts women at a disadvantage: when credit is constrained, farmers are likely to use suboptimal levels of productive inputs, thereby limiting their productive capacity.⁶⁰ As a result, most developing-oriented women entrepreneurs are unable to move from team lending to larger, personal loans that can support business growth.⁶¹

This is particularly crucial in displacement settings, where the presence of women is often predominant, and they are in charge of the energy choices at the household level, especially regarding cooking. It is therefore important to develop EUF mechanisms that go beyond the usual financing channels, hence increasing uptake from women with regards to sustainable energy choices.

3.3 Kenya – ESDS Settings

Kakuma refugee camp hosts 160,000 refugees (January 2021) from South Sudan, Sudan, Somalia, the Democratic Republic of the Congo, Burundi, Ethiopia, and Uganda. The camp is located in Turkana County, one of the poorest counties in Kenya. It was established in 1992 and comprises 4 villages. Kakuma town has a population of 60,000 people, many of whom are in commercial relations with the camps, including for firewood and charcoal supply.⁶²

Kalobeyei settlement was established in June 2015 to ease congestion at Kakuma refugee camp. It occupies an area of 15 km² and it is divided into 3 villages, hosting a total population of 40,850 people living in 7,960 households. Kalobeyei host community occupies an area of about 2 km² with a population of about 1,000 people living in 195 households.

In 2018, 86% of people living in Kakuma ranked as Tier 0 or Tier 1 (out of six tiers) for cooking and lighting access on the Sustainable Energy for All (SEforAll) index, with an average monthly expenditure of 3.72 USD for lighting, 0.35 USD for phone charging, 4.99 USD for cooking, for a total monthly energy expenditure or 9.06 USD (31% of median income).⁶³

The same 2018 study also investigated the willingness and ability to pay for mini-grid-generated electricity for lighting and powering. Even though 38% of the respondents were found not willing to pay for any option, the ‘willingness to pay’ scenario indicates the apparent financial viability of a mini-grid to serve 28% of households in Kakuma I, combined with provision of household solar systems or solar lanterns for 35% of families. The study illustrates a capital cost of 2.43 million USD and a break-even period of 2.4 years, with savings of 1 million USD a year on operating costs compared to the baseline scenario. The high price of diesel and the inefficiency of many small generators make the current situation a less cost-effective way of supplying electricity to the camp.⁶⁴

59 GCAP (2021, July 24th). CGAP. Retrieved from Social Norms Change for Women's Financial Inclusion: http://www.cgap.org/sites/default/files/Brief-Social-Norms-Change-forWomens-Financial-Inclusion-Jul-2017_0.pdf

60 The World Bank Group, (2019). Ethiopia Gender Diagnostic Report: Priorities for Promoting Equality

61 Lakew & Azadi, 2020

62 <https://www.mastercard.us/content/dam/mcom/en-us/Governments/Documents/kakuma-scc-profile-jan2019.pdf>

63 MEI, Drew Corbyn & Mattia Vianello *Prices, Products and Priorities; Meeting Refugees' Energy Needs in Burkina Faso and Kenya*, 2018

64 MEI, Drew Corbyn & Mattia Vianello *Prices, Products and Priorities; Meeting Refugees' Energy Needs in Burkina Faso and Kenya*, 2018

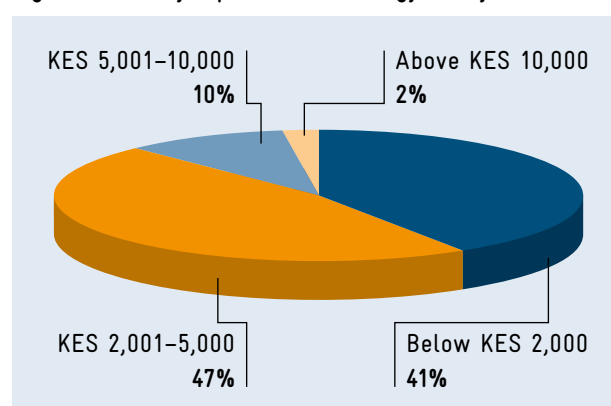
GIZ is currently supporting UNHCR through the programme Energy Solutions for Displacement Settings (ESDS) in the Kakuma and Kalobeyei settlements (July 2019 – October 2022). On the one hand, the project aims to support the Turkana County Government in the development of the Turkana County Energy Sector Plan (TCESP) and develop the capacity around policy and coordination. On the other hand, the project is supporting UNHCR and implementing partners to green their infrastructures through a market-based approach. A key component of ESDS is the advisory service that it offers on sustainable energy business models and financing instruments for the private sector and end-users. The advisory services seek to promote uptake of household connections and productive uses of energy.

The ESDS project also aims at supporting market creation for private sector-owned and operated off-grid solar PV hybrid mini-grids.⁶⁵ While less relevant for the current study, it is worth noting that the project foresees an RBF element for the project developer that is de-risked while entering the market. Similarly, the developer can access a payback risk guarantee in case of camp closure.

On the end-consumer side, the project decided to apply a high degree of subsidy on the CAPEX (82%) in order to match the national utility tariff rate (residential: 0.16 USD/kWh, businesses/institutions: 0.20 USD/KWh). Despite this measure, the GIZ team confirmed that it is likely that the tariff will see an increase in the coming year (0.50-0.70 USD/kWh), to become cost-reflective as, currently, the financial model proposed would not cover costs for operation and maintenance. The humanitarian agencies intervening in the camps are supporting cash and vouchers interventions that are also benefitting the economics of the project. It is not clear for the time being how the planned tariff increase will be paid for by customers and if it will require a subsidy.

Kakuma has seen SHSs PAYGO initiatives piloted since 2016. By 2019, donors, international NGOs, humanitarian agencies, and distributors were able to sell just over 1,000 units with considerable impacts reported by consumers.⁶⁶ Although the numbers are still small, it is interesting to reflect on the shift that the humanitarian sector is making towards energy provision as a basic need, yet in a quasi-commercial light. Using PAYGO modalities in the camp has been a successful strategy, as it allows for small instalments repeated over time, increasing access to products that otherwise would have a too high capital cost.

Figure 4: Monthly expenditure on Energy - Kenya

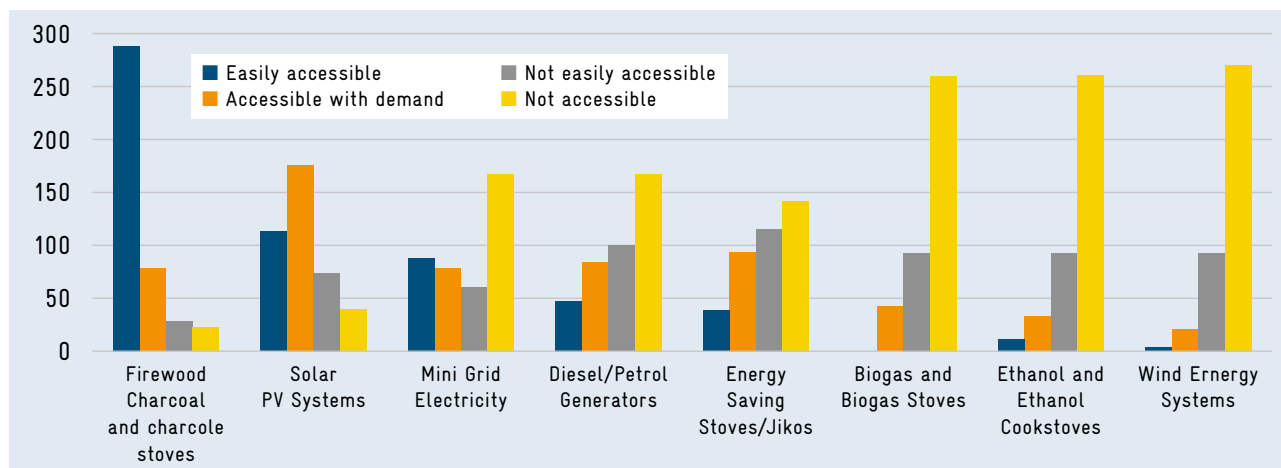


The ESDS EUF field study carried out in July 2021 in Kalobeyei and Kakuma refugee camps analyses the answers of 20 key informants and the results of 420 questionnaires conducted among refugees and host communities. Among the respondents, 68% have an income and 37% of them define themselves as entrepreneurs. The average monthly income of both the host communities and refugees are KSh 4,000 – KSh 6,000 with 27% and 19% averaging between 6,000 and 8,000 KSh. This translates on an average monthly expenditure of KSh 2,000 – 5,000 for 47% of the respondents, followed by 41% spending below KSh 2,000.

65 Kalobeyei: 60kWp PV, 100 kVA diesel generator, 120 kWh battery; Kakuma: 20kWp PV, 10 kVA diesel generator, 60 kWh battery

66 https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/02/Mobile_Enabled_Energy_M4H.pdf

Figure 5: Ease of accessibility for different forms of energy – Kenya



The study found that despite SHSs costing in general between KSh 5,000-10,000 per month, 48% of the respondents owns a solar PV system. 85% of the respondents use biomass for less than KSh 2,000 per month. Interestingly, only 21% of respondents declare to be powered by a diesel generator, while 30% are connected to a mini-grid (although it is not specified how they are powered). Energy-related payments are made either

through mobile money (90%) or cash (88%); only 35% use bank transfers. Around 90% of the respondents use savings and about 45% access loans to cover these expenses.

The table below illustrates the financial stakeholders that are present in the camps, highlighting the services offered and the main counterparts through which the initiatives are conducted.

Table 4: End-User Financing stakeholder mapping – Kenya (own development)

	Mobile Network Operators	Government Agencies	Banks	Non-bank financial institution	Hamanitarian agencies	Informal (More than 5,000 are organised into savings groups)
Name	Safaricom, Airtel, Equitel	Coordinated by RAS on ground	Cooperative Bank of Kenya (Agents), KCB, Equity Bank	Africa Entrepreneurs Collective (AEC), AAH	UNHCR, WFP, GIZ	Savings groups, informal agents
Services offered	<ul style="list-style-type: none"> • Loan disbursement/Repayment • Mobile money transfer 	<ul style="list-style-type: none"> • Registration of refugees • Provision of identity • Credentials • Bulk payments (hunger safety net programme for host) 	<ul style="list-style-type: none"> • Mobile banking solutions • Account to account transfer (remittance) • Agency payment 	<ul style="list-style-type: none"> • Short term loans • Savings facilitation • Linkage to banks 	<ul style="list-style-type: none"> • Refugee registration • Data consolidation • Bulk payment facilitation 	<ul style="list-style-type: none"> • Savings • Emergency loans • Facilitate linkage to formal financial services for individual members and groups
Partners	WFP, UNHCR	UNHCR, WFP main partner	<ul style="list-style-type: none"> • INGOs and local NGOs • Community groups • MNOs • Local MSMEs 	<ul style="list-style-type: none"> • INGOs and local NGOs • Community groups • MNOs • Local MSMEs 	<ul style="list-style-type: none"> • Banks • NGO implementing partners 	<ul style="list-style-type: none"> • INGOs • Banks
Agents	Approx 250 agents		Approx 97 agents	About 2,500	About 300 Bamba chakula agents + bamba chapaa agents	<ul style="list-style-type: none"> • Group leaders • Community influencers

3.3.0 Opportunities for End-User Financing to Increase Energy Access in Displacement Settings

- In these settings, there is a clear demand for energy products and services and there are opportunities to customise market-based models to bridge offer and demand.
- There is increased acceptance of market-based solutions in refugee camps with many players coming into the industry.
- Customers are showing willingness and ability to pay for energy products and services
- There is a high mobile phone penetration with a generally positive experience with EUF and payment options.
- There are growing distribution networks in camp and host areas.

3.3.1 Obstacles for End-User Financing to Increase Energy Access in Displacement Settings

- Bureaucracy in approval processes for mini-grids and other players in the energy sector in displacement settings.
- Regulatory framework which limits the refugees' access to ID/mobile numbers/bank accounts.
- Land ownership/lease for investors planning large energy projects is sometimes a big challenge due to land ownership tenure in displacement settings
- Uncertainty about the closure of refugee camps and settlement brings along fear for long-term investment in the setting.
- Some private sector actors lack familiarity with activities in displacement settings.
- Low profitability of end-user finance and payment systems in DS where a grant is needed. A trader reported that the transport cost for his products from Nairobi to Kakuma is 40%, hence shrinking the margin. The trader is planning to set up production in Kakuma.
- Few access points for accessing finance.

3.4 Uganda – ESDS Settings

Considering the dramatic situation faced by refugees and host communities, income generating activities are urgently needed to address the negative impacts of income loss and insufficient coping strategies. The opportunities to address are:⁶⁷

- **Targeting women** in line with the Renewable Energy Policy (2007)⁶⁸ that recognises the unique role of women in the provision and management of energy sources.⁶⁹ ESPs can involve refugees and host women in the promotion, distribution and maintenance of energy solutions through employment in their own shops; being an agent as a small business owner; or running energy kiosks. As highlighted above, the EUF demand for energy access could be driven by women, who are mostly credit averse. A possible solution would be to develop saving-based products through VSLAs and mobile money, as most women are part of SACCOs, VSLAs and ROSCAs.

67 GIZ (to be published) – Access to Energy Livelihoods and Jobs for Refugee and Host Communities in Ethiopia, Kenya and Uganda

68 Government of Uganda – THE RENEWABLE ENERGY POLICY FOR UGANDA <https://etutoring.gayazahs.sc.ug/uploads/ebooks/1336063700.pdf>

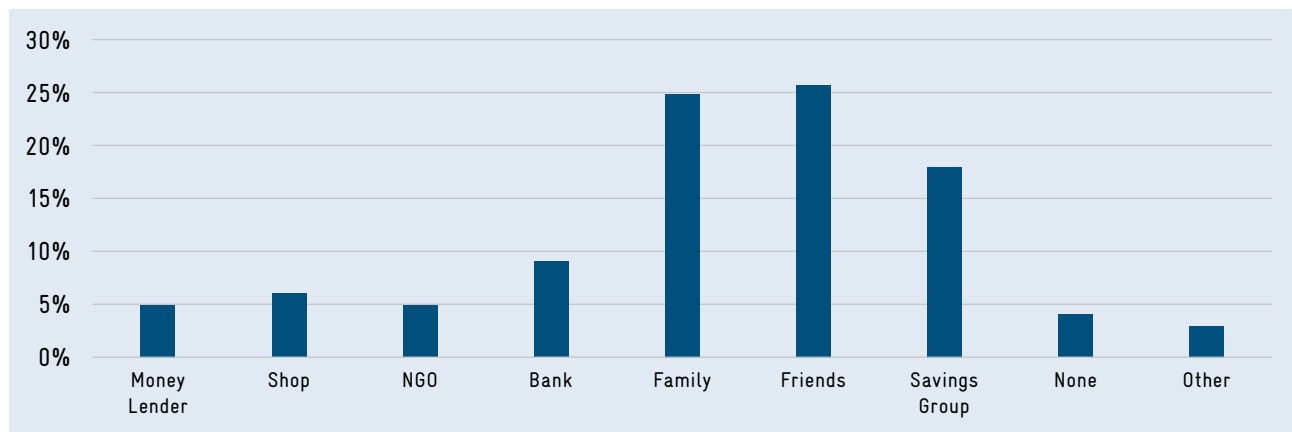
69 The African Development Bank and ENERGIA (2020), Gender and energy country briefs Uganda, https://www.climateinvestmentfunds.org/sites/cif_enc/files/knowledge-documents/gender_and_energy_country_brief_-_uganda.pdf

- **Targeting farmers:** Create and increase revenues through new and improved services along the value chains with, for example, Tier 1 PUE solar products by Solar Aid and Solar Now, who are already present in West Nile (including Rhino Camp and Imvepi refugee settlement). Further, Tier 2 and 3 pilots are underway with the SCC Innovation Fund and Power Africa.⁷⁰ Given that much of the population is dependent on agriculture,⁷¹ farming-related PUE is gaining increased interest from the donors. As a consequence, PUE in agriculture could increase individual monthly incomes by 30%, for example processing and milling grains can more than triple the crops' value by weight.⁷²
- **Targeting small business owners** who see the benefits in using solar energy to provide power (longer business hours, information (radio), and communication (phone charging)).⁷³

- **More ambitious projects** can create jobs and revenues both in energy and other value chains. For example, mini-grids promoted by international development agencies⁷⁴ need to develop productive uses for their electricity to increase their revenues and become sustainable. In the long term, increased energy access stimulates economic activity in communities, which in turn increases income and the proportion of income spent on energy, thus creating a continuous virtuous cycle.

Access to finance and credit services from financial institutions for refugees and host communities are very limited in Rhino Camp and Imvepi settings. A total of 51% of refugees host community members rely on friends and families for credit. Savings groups are also playing a key role in providing financial services to 18% of these communities.⁷⁵

Figure 6: Sources of credit in Rhino Camp & Imvepi settings*



* World Vision (2017) Inter-Agency Livelihood Assessment Targeting Refugees and Host Communities in IMVEPI and Rhino Camp Settlements Arua District, Northern Uganda

70 USAID – Smart Communities Coalition Innovation Fund (SC-CIF) – <https://www.usaid.gov/powerafrica/sccif>

71 Inter-Agency Livelihood Assessment Targeting Refugees and Host Communities in IMVEPI and Rhino Camp Settlements – Arua District, Northern Uganda

72 Promoting Productive Uses of Energy in Uganda Status and Potential for Growth

73 Paying for darkness, strengthening solar markets for refugees in Uganda, (2019) Rhino Camp and Bidibidi settlements in the West Nile region.

74 UOMA: Mapping the Ugandan off-grid energy market

75 World Vision (2017) Inter-Agency Livelihood Assessment Targeting Refugees and Host Communities in IMVEPI and Rhino Camp Settlements Arua District, Northern Uganda, <https://www.wvi.org/sites/default/files/Livelihood%20report-lowres.pdf>

One formal FSP, RUFU, is present in Rhino Camp and Imvepi. RUFU provides agriculture loans, business loans for groups and individuals, asset loans (energy product loans fall under this) and remedy loans for the youth. The portfolio at risk is currently very high (18%), where the prudential limit is 5%, which illustrates the economic difficulties faced by the refugees and the financial institution.

Other service providers are present in the region; Nile MFI (in (Madi Okollo, Terego, Yumbe, Arua, Maracha), Vision Fund (in (Arua, Moyo, Yumbe, Adjumani), BRAC, Post Bank (Arua, Yumbe), FINCA (Arua), Centenary Bank (Arua), Finance Trust Bank (Arua), Pride Micro Finance (Arua).

3.5 Ethiopia – Energy Solutions for Displacement Settings

3.5.0 Sources of Income

According to one notable assessment on market baseline conducted by UNDP in 2019, there is a significant energy access market potential within Gambella refugee and host communities.⁷⁶ The average monthly energy service expenditure in a refugee household for five camps was estimated to be about USD 17.9 (for cooking, lighting & phone charging) – which represents 25% of the median household income.

According to the field studies by the national consultants, most of their respondents between the refugee and the host communities of Gambella are farmers, with security guards, shop owners and schoolteachers coming next. The estimated monthly income ranges from ETB 1,000 (USD22.15) to ETB 3,800 (USD 84.17), which, in the case of farmers, is heavily affected by seasonality.

The sources of livelihood, however, vary between host and refugee communities, with the latter being mostly engaged in selling firewood, brewing local alcohol (which requires a large amount of firewood), selling items provided for free by donor organisations such as WFP, or they receive remittances from their kins. Finally, there are also economic activities within camps such as small grocery shops or mobile power-charging facilities, dominated mostly by those who can access capital through family connections and remittances.

Some formal opportunities to earn income are made available to refugees in the camps through the “*incentive worker*” scheme, under which refugees are employed by the Administration for Refugee and Returnee Affairs (ARRA) or its Implementing Partners (IPs) usually as teachers, health or social workers. Due to restrictions on formal employment, however, monthly wages are capped at around ETB 700–800 (less than USD18). More informally, refugees can earn income through the sale of goods provided to them for free in the camps by donor organisations such as WFP. Refugees sometimes do receive remittances from their kin in other areas such as South Sudan and other resettlements family connections and remittances.

In February 2019, the Government of Ethiopia announced a new refugee law providing most rights to refugees, including the right to work and access to basic services. However, the law permitting refugees to work has not yet been followed by secondary regulations and directives to practice on the ground.

76 UNDP. (2019). Sustainable Energy Options in Gambella Refugees and Hosting Areas (First draft).

3.5.1 Financial Opportunities and Inclusions

When rations are reduced or arrive late, refugees try to compensate for smaller or missing rations by street begging, borrowing food from host community members of their ethnic group, or – in some cases – theft. According to the consultants' findings, as little as 20% of interviewees have savings and these are usually held in cash at home. It was also found that the use of traditional contribution-based savings is not common among the host communities, with only 9.09% of the respondents being part of any such group.

The new refugee law Article 33 grants refugees access to banking services, including money transfers using ARRA identification documents. However, while some refugees have access to finance and bank accounts, the national consultants found that as many as 80% of their respondents did not have any savings in a financial institution. Some of the reasons cited included the distance to these locations and the perception of financial institutions not being appropriate for "poor people".

Limited access to finance is one of the primary barriers to promote and expand energy access in displacement settings. While there are MFIs in the Gambella region, none of them so far provide financing products to refugee and host communities to promote sustainable energy access. Based on the findings of the local consultants, the Gambella Microfinance Institution has extended loans to 880 borrowers with a total value of USD 62,638, equalling 71 USD/borrower on average, but neither of these loans was directed to address energy poverty.

Major challenges include MFIs quasi-monopoly in the region (e.g. OMO MFI) due to its political backing, and not being flexible in their lending requirement, coupled with high interest rates, high transactional costs and a lack of information management systems.

3.5.2 Supply Models

While potential energy markets exist in the camp and host community, they are mostly informal and built around the informal trade of fuelwood and charcoal between the host and refugee communities. This is also a sector causing long-standing conflicts between refugee and host communities over deforestation.

The current energy provision by the refugees is a single delivery model in which energy products are bulky-procured and distributed by ARRA, UNHCR and Refugee Central Committee (RCC) in a coordinated manner. For energy product distribution, UNHCR and ARRA have developed a short brief guideline, "*Standard Operating Procedures for Distribution and Management of Solar Lanterns, Solar Street Lights and Improved Cookstoves in Refugee Camps*". Practices of UNHCR in Ethiopia include, for instance, the free distribution of briquettes produced by cooperatives with the support of donors and alternative cooking fuel.

The provision of cooking energy to households and the need for continuous fundraising given the existing constraints, has negatively affected the households willingness to pay for market-based products with higher prices and limited a. more sustained participation from private sector actors. Due to these activities that might have already disrupted any market-driven approaches, we are not aware of any distribution operating on a (semi-) commercial basis.

3.5.3 Cooking Energy Systems

According to the fieldwork of the national consultants, all respondents from both the refugee and the host community in Gambella use firewood and charcoal for cooking. The type of stoves found in their homes is predominantly the three-stone type. About 73% of our respondents said that members of their households collect firewood from the forests located around the community. In the refugee and the host community, there is a lack of improved cooking technology.

All respondents stated that they are dissatisfied with the current solution as the whole process consumes far too much of their time and energy; besides, it is acknowledged that the fumes can be harmful to their health and as the forest recedes further away due to degradation, they are at risk of being exposed to gender-based violence.

It was also stated by respondents that no single improved cooking solution exists that meets local cooking practices, especially to South Sudanese's cooking customs, which also hinders the uptake of more efficient stoves as they tend not to be culturally appropriate.

3.5.4 Preliminary Conclusions

The literature review and findings from the field have shown that demand for energy products and services is present and strong; further, energy access, especially informal trade of fuelwood and charcoal, seems to be a source of livelihood among the refugees.

Existing reports also highlight few bottlenecks on the supply side:

- *Solar kits and lanterns:* Free distribution has been promoted and organised over time by ARRA, UNHCR, and RCC, hence disrupting any potential market-driven initiative. Further, the major constraints linked to the supply of imported products in Ethiopia, due to the shortage of FOREX and the fact that the sector is open to domestic players only. As a result, the solar market in Ethiopia is small, fragmented and stocks are often disrupted with negative consequences in terms of supply.
- *Cooking energy systems:* The situation with CES is slightly different, as these are products that could be manufactured locally, hence overcoming issues related to forex. Also, innovative cooking solutions that aim at reducing fuel and/or charcoal consumption, or that investigate the use of other fuels, would undermine the main source of income of refugees in the area.

4. POTENTIAL FOR TRANSFER AND APPLICABILITY OF END-USER FINANCE TO DISPLACEMENT SETTINGS

4.0 Kenya

4.0.1 National Preconditions for Deployment of End-User Finance

Kenya's mobile network ensures high levels of connectivity across the country: in 2018, more than 90% of the national territory was covered by 2G coverage and more than 80% by 3G coverage. Between January 2020 and January 2021, Kenya's mobile penetration grew by 11% reaching 59.24 million mobile connections or a penetration rate of almost 109% (many people have more than one SIM card).⁷⁷ This penetration has encouraged mobile money transactions. Kenya's platforms are not embedded in phones but are supported via SIM card applications, making it accessible to less sophisticated mobile phones that lack complex application features.

Physical Preconditions

By comparing the different characteristics using an index system as seen in the table below, we are able to analyse the preconditions that need to be put in place to allow for the success of the EUF products.

The full table with the national preconditions can be found in *Annex 1: National preconditions – Kenya*.

3	It is a precondition
2	It could be a precondition/could facilitate the implementation of EUF
1	It is not a precondition

Traditional automated teller machines (ATMs) are not a pre-condition for formal financial institutions to operate. Indeed, even in the case of banks, the existence of agents reduces the need for ATMs and agents can operate as a physical branch or as part of a Kiosk service. A Kiosk offers financial services such as deposit, withdrawal and/or short-term money lending. Kiosks have offered wide-spread accessibility of financial services and products to remote areas in Kenya.

⁷⁷ Digital in Kenya Report 2021 <https://datareportal.com/reports/digital-2021-kenya>

Financial Preconditions

In Kenya, there is not an extensive credit history system: the Credit Reference Bureau (CRB) collects data on loans issued by lending institutions, and consequently creates credit reports on a borrower's current and past loans. However, this does not apply to all financial products offered. Credit check systems are recently being integrated into some end-user financial products offered by banks and MFIs but are not key to their uptake and are not part of the risk management procedures.

Guarantors offer some risk management during the issuance of financial products, especially where the risk potential is perceived as high. The risk perception is influenced by the customer economic power, the amount being requested, and the default rate of the area. The economic power of a potential customer is analysed on the basis of their source of income and the type of employment (formal/informal). ESPs do not investigate the type of employment to determine the possibility to sell products to an applicant.

Regulatory Preconditions

To abide by governmental requirements, a series of checks are necessary for the client to apply for products. A customer is required to provide a Kenyan national identification number, a Kenyan passport number or an alien ID number. This offers a safeguarding mechanism against risks of fraud, either from the part of the customer or the financial service provider.

The full table with the national preconditions can be found in *Annex 1: National preconditions – Kenya*.

4.0.2 Energy Solutions for Displacement Settings Preconditions for the Deployment of End-User Finance

Some widespread misconceptions related to refugees' willingness and ability to pay, coupled with a perceived scarce understanding of financial options and products, prevent the private sector and financial institutions to venture into this market. Generally, even if some energy companies started to cater for this market – also thanks to de-risking mechanisms, financial institutions are still reluctant to reach out to this clientele. In Kakuma and Kalobeyei, popular misconceptions that we came across during the study were the fact that refugees are not prepared to invest toward assets ownership, they have a very low willingness to pay for all energy services, aside from satisfying cooking needs, and that refugees have low technological literacy, also due to a lack of access to mobile phones and connectivity.

In Table 9 below, the physical, financial and regulatory conditions dispel the above misconceptions while the institutional conditions affirm the perceived risk by more regulated financial institutions.

Table 5: Displaced Setting preconditions – Kenya (Kakuma and Kalobeyei)

PRESENCE/AVAILABILITY OF	IN THE REFUGEE CAMPS	IN THE HOST COMMUNITIES
INSTITUTIONS		
Commercial banks	YES but limited to Equity bank	YES, Equity bank and KCB Bank
Micro-finance institutions	NO	NO
SACCO	NO	NO
VSLA	YES (although considered informal)	YES, Matatu owners' association and boda-boda association
Solar kit distributors	YES, M-KOPA solar, BBOX, Pawame, SunKing, Juba Electronics	YES, M-KOPA solar, BBOX, Pawame, SunKing, Juba Electronics
Improved cookstoves distributors	YES	YES
Mini-grid operators	YES, Renewvia, Okapi Green	YES, Kenya Power, Renewvia, Yelele
PHYSICAL INFRASTRUCTURES		
Physical branches of banks/MFI	YES, Equity bank	YES, Equity bank and KCB Bank
ATM of banks	YES, Equity bank	YES, Equity bank and KCB Bank
Mobile network	YES, Safaricom, Airtel	YES Safaricom, Airtel
Mobile money agents	YES, Safaricom, Airtel	YES Safaricom, Airtel
EAS agents	YES, Usafi green and Juba electronics	YES Usafi green and Juba electronics
Phones	YES	YES
FINANCIAL INCLUSION		
Bank accounts	YES	YES
MFI accounts	NO	NO
SACCO accounts	NO	NO
VSLA accounts	YES, although considered informal (chamas)	YES, although considered informal (chamas)
Rental contracts at ESP	NO	NO
Credit contracts at ESP	NO	NO
Leasing contracts at ESP (including PAYGO)	YES	YES
Mobile money accounts	YES	YES
Formal jobs	NO	NO
Credit history	NO	NO
Collaterals	NO	NO
Guarantors	YES	YES
Literacy / numeracy	NO	NO
REGULATORY INCLUSION		
National IDs	Partial, Refugees are issued with alien IDs with a short validity	YES
SIM Cards	YES	YES
Data from Country Consultants linked to present study * sample size (420 interviewees- households, businesses and social institutions) ** based on the answer to what payment mode is being used to pay for the energy services		

Institutions

In general, financial service providers are not present in Kakuma and Kalobeyei. Equity Bank represents an exception as it started servicing both refugees and the host community, however other banks – including KCB – only serve the host community. The non-saturation of the financial market offers an opportunity to partner with various service providers to come up with financial products that serve and are specific to the community.

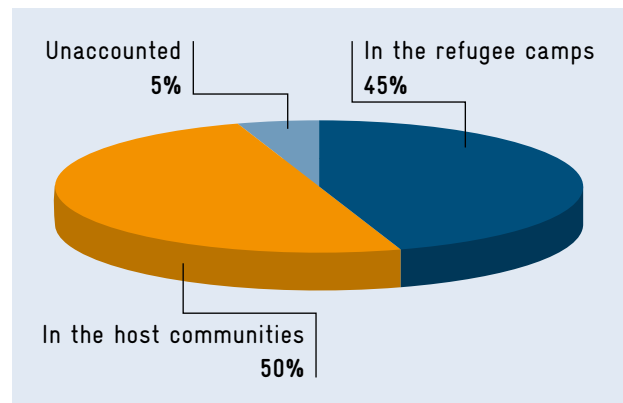
ESPs in the area range to meet the various community needs from clean cooking, mini-grid operatories, and solar kit distributors. M-KOPA, BBOXX, Pawame (manufacturers only), and Sunking are the dominant service providers each having different operational and market entry strategies. Pawame and Sunking operate using a Business-to-Business model leaving distribution to third parties, e.g. Usafi green. BBOXX works with a hybrid business model, which will be explored below.

Physical

Similar to the national mobile phone penetration, there is substantial demand for communication services. Mobile phone penetration is reported to be high for both camp and host community-town making it a potentially attractive market for mobile banking. This is seen by the ESDS field study where mobile penetration for both settings were around 50%, as seen below. In a study by IFC,⁷⁸ the mobile handset market in Kakuma camp and town is estimated at KES 49 million (USD 480,000) annually, assuming a three-year lifetime. About 59% of the market is from the town and 41% is from the camp. The dominant mobile network service being Safaricom.

78 IFC, Kakuma as a Marketplace: A consumer and market study of a refugee camp and town in northwest Kenya, SPECIAL CONFERENCE EDITION 2018. https://www.ifc.org/wps/wcm/connect/0f3e93fb-35dc-4a80-a955-6a7028d0f77f/20180427_Kakuma-as-a-Marketplace_v1.pdf?MOD=AJPERES&CID=mc8eL2K

Figure 7: Mobile penetration in Kenya Displacement settings (country consultant)

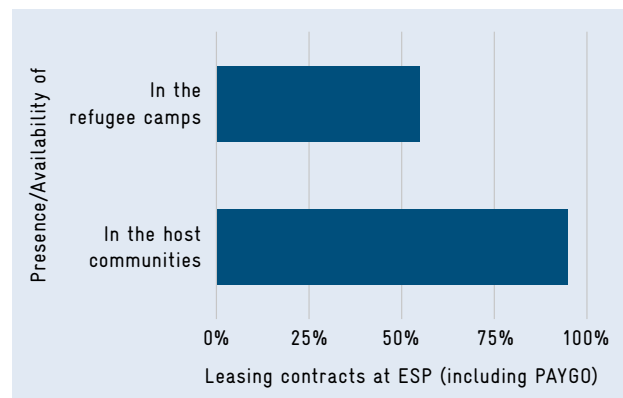


Financial

Bank accounts are limited in displacement settlements in Kenya, especially because of the more stringent regulations (see below). Equity bank is the only bank physically present in both the host community and refugee camps and the only bank that allows refugees using their alien IDs to become bank account holders. Being a bank account holder is not a pre-condition for accessing EUF through other financial providers or ESPs.

PAYGO uptake is considerably high in both host and refugee communities, as energy service provides leverage with the mobile money facilities available to expand the offer of this payment modality. This has enabled viable leasing options with 95% penetration in host communities (from the ESDS field study).

Figure 8: Presence of leasing contracts by ESP in Kenya DS (country consultant)



Regulatory

As part of the regulatory needs to be provided by a potential energy or financial service consumer, a form of national identification must be produced. This can be a Kenyan National ID number or Kenyan Passport number and in the cases for foreign nationals or refugees an alien ID is required. However, this regulatory framework that serves a check mechanism has also been limiting refugees to access ID, mobile numbers and, in some cases, bank accounts. Subsequently, this limits their access to diverse EUF systems.

4.0.3 Analysis of Existing Business Models on End User Finance schemes

Similar to the wide national landscape, there are various business models, and some have been successful in different ecosystems. In Kakuma and Kalobeyei, the business models employed vary with some of them integrating PAYGO systems creating a unique hybrid model.

Cash & Carry Options

Consumers need to pay the full cost for the product upfront. This is a common and preferred option for distributors/retailers within Kakuma and Kalobeyei. Energy distributors and retailers prefer this method as it reduces the risk and, therefore, without other de-risking mechanisms, this remains their preferred sales option.

Third-Party Financing Partnerships

This is a partnership that entails financial institutions creating partnerships with ESPs to offer EUF to consumers. The client accesses a small loan programme through the financial institution, and they are provided with the energy products which tend to be delivered to the financial institutions' offices. This is the case with Faulu Kenya's Eco smart Energy and KWFT clean and renewable energy products loans. They provide the loan for the acquisition of a clean cooking gas

from a pre-selected range of cooking stoves. Recently, Equity Banks have made the loan process easier by creating a shortlist of what they refer to as "*Whitelisting Merchants*". When a consumer wants to buy a product such as a clean cooking stove from a vendor through Equity they are given a till⁷⁹ number that is connected to the Equity database. Immediately, the number is identified, and the loan is approved with the amount credited to the vendor and debited to the customer. This is done within minutes allowing the customer to leave with the products at the end of the transaction.

On-bill Financing

For mini-grid development, energy companies' partner with local financing intuitions to finance the sale of electricity. Clients are billed monthly on consumption; in the host communities of Kakuma and Kalobeyei Kenya Power is providing this service, while GIZ ESDS is experimenting with a similar model for UNHCR.

PAYGO Systems (Lease Transaction)

In Kenya, PAYGO is the most popular way to purchase solar off-grid products. Most MFIs and SACCOs offer some kind of EUF for SHS, but these services offered by MFIs are less appealing for clients than PAYGO.⁸⁰ For instance, solar companies using PAYGO modalities are more likely than MFIs to lend to unbanked customers and will require smaller amounts than most MFIs. The widespread availability of mobile money facilitates the use of PAYGO in Kenya as well. BBOX is one energy company that has successfully implemented PAYGO systems into its business model.

79 A unique payment number that is used to identify a business's account and money transactions. It is used for payment purposes from the end-user.

80 Power Africa Off-grid Project, Off-Grid Solar Market Assessment Kenya, October 2019. https://www.usaid.gov/sites/default/files/documents/1860/PAOP-Kenya-MarketAssessment-Final_508.pdf

User-Based Pricing

This is a subscription-based model, where the customer repays for the usage of the energy based on the equipment rate usage. One example is Solar Freeze, who offers a refrigeration service dubbed Pay As You Store, in the Turkana region through a simple mobile money payment option allowing for monthly payments.

Asset Financing Loans

Asset financing is a product designed to invest in movable assets, in this case, energy/electricity equipment. Once an asset is paid off in full through micro-payment, the client can leverage this credit history to access more products and services. One such platform is M-KOPA, which is an asset financing platform that offers millions of underbanked customers access to a diverse range of energy assets.

4.0.4 Appropriateness of End-User Finance in Kakuma and Kalobeyei

Appropriateness is ‘the quality of being suitable or proper in the circumstances.’ For this study, we define appropriateness as the extent to

which the innovation responds to a recognised problem. Aspects of appropriateness initially considered during the analysis of the varied market-based EUF modalities in Kakuma and Kalobeyei are:

- Which innovators identified the problem as a need?
- Which is the choice of the intervention and what is its mode of delivery?
- What is the extent to which consumers were able to influence the design of the innovation? What are the short-term and long-term needs that are being met?
- Are consumers going to accept the innovation as meeting one of their priority needs?
- How do the interventions cater for vulnerabilities and capacities of different groups in the affected area?

4.0.5 Risk and Mitigation Options

For financial institutions and ESPs, there is a perceived risk that deters them from engaging in such markets. Simultaneously, entering these financial agreements could represent a risk for potentially vulnerable clients. These risks can be mitigated as described below:

Table 6: Risk and mitigation options (Uganda)

RISK	MITIGATION STRATEGY
Increase of debt within households	Facilitating schemes for debt repayment and adjusting the value of transfers and length of repayment periods.
Defaulting risk	Training and equipping consumers with financial literacy, including budgeting, debt repayment and financial prioritisation.
Lack of valid documentation for access to EUF	Faster allocation of Alien IDs to refugees, and for a longer periods; Advocate through UNHCR to enable camp registration numbers as alternative forms of ID.
Slow uptake of EUF due to limited presence in camps	Leverage digitalisation and double energy service provider agents as financial service providers (agreements between energy and financial service providers).

4.1 Uganda

4.1.0 National Preconditions for Deployment of End-User Finance

The Ugandan financial sector is facing a dramatic situation, which is linked to the multidimensional crisis created by the COVID pandemic. The first wave of COVID-19 and related measures had a dramatic impact on the economy: GDP is estimated to have dropped by -1.1% in 2020 (compared to the 5.3% increase in 2019). The service sector faced an even more dramatic situation: a drop of 2.5% in GDP in 2020 compared to an increase of 6.3% in 2019.⁸¹ The situation was supposed to improve in 2021 but the second wave and the related measures are already impacting this optimism.⁸² The preconditions indicated in this chapter are thus subject to change from the Bank of Uganda and from the service providers.

Physical preconditions

For the banks and MFIs, the loan contracts are typically established at the branch or by the loan officer and disbursed on the account. The client can withdraw at a branch, bank mobile/agent, mobile money/agent (through push and pull) or directly pay the goods' supplier. The repayment can be done at the branch, through a loan officer, a mobile/bank agent, or a mobile money/agent (then push to the bank account). The main precondition is related to trust, which can be established through relationships, referrals with the community leaders, and the physical presence of an agent.

The SACCOs can benefit from a physical branch mainly for cash transactions, while most of the meetings are handled in person at the members' location (like for VSLAs).

From experience and interviews, we recognise the crucial role of the EAS agent to instill trust, provide information and training, and be a reference for after-sales service and maintenance. In addition, the ESPs using PAYGO services require functioning mobile money agents and wallets at the disposal of their customers.

Financial preconditions

Banks and MFIs are very conservative in general and on energy EUF as it is a new (not that well demonstrated) line of business with customers that may be considered risky. On top of requiring an account, they require formal jobs, credit history, and collaterals. For example, for the institutions supported by the **UECCC Innovative Credit Support Facilities for Renewable Energy**, 30% will be paid by the Rural Electrification Agency (REA) but conditions are drastic.

SACCOs and VSLAs are more flexible as the creditworthiness is assessed on all sources of revenues (including remittances), general business capacities and social assets (like reputation and inclusion in the community).

ESPs are also more flexible and use the upfront payment and the client repayment history to de-risk the first purchase and the extensions. This drastically reduces the financial preconditions on the end-users.

Regulatory preconditions

To abide by governmental requirements, a series of checks are necessary for the client to open a bank account and apply for products (especially loans). A customer is required to provide a Ugandan national identification number, a passport number, or an alien ID number. This offers a safeguarding mechanism against risks of fraud, both from the part of the customer or the FSP.

81 Deloitte (July 2021) Economic impact of the COVID-19 pandemic on East African economies, <https://www2.deloitte.com/content/dam/Deloitte/ke/Documents/finance/Economic%20Impact%20of%20the%20Covid-19%20Pandemic%20on%20East%20African%20Economies-Volume%202.pdf>

82 <https://newsaf.cgtn.com/news/2021-08-14/Second-wave-of-COVID-19-dampens-Uganda-s-economic-recovery-12Hz3CidgNG/index.html>

By comparing the different characteristics using an index system as seen in the table below, we are able to analyze the preconditions that need to be put in place to allow for the success of the EUF products.

3	It is a precondition
2	It could be a precondition/could facilitate the implementation of EUF
1	It is not a precondition

The full table with the national preconditions can be found in *Annex 2: National preconditions – Uganda*.

4.1.1 ESDS Preconditions for Deployment of End-User Finance

Table 7: Displaced Setting preconditions – Uganda (Rhino Camp and Imvepi)

PRESENCE/AVAILABILITY OF	IN THE REFUGEE SETTLEMENTS	IN THE HOST COMMUNITIES
INSTITUTIONS		
Commercial banks	NO	YES, Centenary, FTB, Post Bank
Micro-finance institutions	YES, RUFU and Vision Fund International	YES, BRAC, FINCA, Nile, Pride & Vision Fund
SACCO	NO	YES
VSLA	YES	YES
Solar kit distributors	YES, Tulima solar, solar Aid	YES
Improved cookstoves distributors	YES	YES
Mini-grid operators	NO	YES
PHYSICAL INFRASTRUCTURES		
Physical branches of banks/MFI	YES	YES
ATM of banks	NO	YES
Mobile network	YES, MTN, Airtel	YES MTN, Airtel
Mobile money agents	YES, MTN, Airtel	YES MTN, Airtel
EAS agents	YES	YES
Phones	YES	YES
FINANCIAL INCLUSION		
Bank accounts	YES	YES
MFI accounts	YES	YES
SACCO accounts	YES	YES
VSLA accounts	YES	YES
Rental contracts at ESP	NO	NO
Credit contracts at ESP	NO	NO
Leasing contracts at ESP (including PAYGO)	YES	YES
Mobile money accounts	YES	YES
Formal jobs	YES	YES
Credit history	NO	NO
Collaterals	NO	NO
Guarantors	YES	YES
Literacy / numeracy	NO	NO
REGULATORY INCLUSION		
National IDs	Partial, Refugees are issued with alien IDs with a short validity	YES
SIM Cards	YES	YES

These preconditions may be impacted (some financial and energy service providers may have to close) by the measures taken in link with the COVID-19 pandemic and their subsequent economic implications.⁸³

4.1.2 Analysis of Existing Business Models on End-User Finance Schemes

Considering the dramatic situation faced by refugees and host communities, quick income generating activities are needed to address the negative impacts of income loss and ineffective coping strategies. The best way to do it is to improve coordination and existing livelihood efforts from the stakeholders involved.

For example, two energy kiosks were set up in both Rhino Camp and Imvepi settlements by En-Dev in 2018. Additionally, two more kiosks have been built in Rhino Camp settlement by ESDS and are operational. The lack of formal micro-financing schemes for customers to access energy products could also be addressed (in most cases, energy kiosks have been providing payments in instalments to people they know and trust).⁸⁴ We could also imagine developing revenue-generating appliances as indicated in previous chapters (e.g. refrigeration). In Annex 4, there is an extensive list of livelihood programmes with a PUE component. Other livelihood programmes could also benefit from a PUE component, for example:

- **RICE project** – implemented by GIZ Rise in West Nile supporting 260 farmer groups (6,500 beneficiaries – 50% host community and 50% refugees) in market-oriented agriculture (rice, cassava, horticulture, pigs, goats, bees, poultry, sunflower etc.).

- **Step up livelihood project** – tomato farming by youth for income generation implemented in Rhino Camp by Palm corps.
- **Tomato and Sesame seed project** – in Rhino camp implemented by Palm corps.
- **Energy efficient stoves** – implemented in West Nile by LWF.
- **Fresh Fruit Nexus** – growing and exporting oranges, sweet potatoes, turmeric and ginger, implemented by DanChurchAid (DCA) in Arua and Terego.

The current coordination of the Livelihood and Resilience Working Group and its results could drastically be improved.⁸⁵ The following is extracted from our consultations and illustrates the degree to which improvements could be made:

- The Refugee Response Plan (RRP) was often mentioned as the overarching framework for the country. Partners seek greater clarity and consistent communication on the links between the RRP and the Comprehensive Refugee Response Framework (CRRF) sector plans at national and field levels. *“Even at central level, we don’t understand.”*
- Partners in the field need to be briefed on development funding and programmes, and be involved in the development of the programmes. *“We see gaps but we are not a part of the conversation.”*
- At the field level, humanitarian partners are perceived to not fully engage with local government and district. The Office of the Prime Minister (OPM)/UNHCR must include district officials and refugee leadership, in settlement level interagency meetings.

The current state of knowledge should be validated and fine-tuned with the stakeholders, as tabulated below:

83 REACH (July 2021) Rapid Briefing Note: Impact of the COVID-19 resurgence in refugee-hosting districts Uganda. https://www.impact-repository.org/document/reach/138ce7c1/REACH_UGA_COVID-19-briefing-note_Refugee-districts_July21.pdf

84 Humanitarian Energy: Energy for micro-enterprises in displacement settings 2021

85 RRP Planning Update FINAL July 2021 <https://data2.unhcr.org/fr/documents/download/87975>

Table 8: State of knowledge and opportunities - Uganda

Opportunity	Validation Stage	Potential EUF	Tentative Interventions
Women promote, distribute and maintain EAS through VSLAs and SACCOs	Early: success cases	Through VSLAs & SACCOs	Result Based Grants to link SACCOs and VSLAs to MFIs (& Banks) and demonstrate sustainability.
Farmers use ES to improve their revenue through VCs	To be demonstrated	MFIs (& Banks)	Result Based Grants to demonstrate sustainability for farmers, MFIs and Banks.
Small Business Owners	Demonstrated	ESP, MFIs & Banks	Result Based Subsidies to establish sustainable presence in refugee settings
Mini-grids	Early: success cases (e.g. Kitobo Island)*	Banks	Guarantees.

* Power Africa (2020) – Connecting Kalangala: how USAID, Power Africa, and the Private Sector are improving lives in Uganda - <https://powerafrica.medium.com/connecting-kalangala-how-usaid-power-africa-and-the-private-sector-are-improving-lives-in-uganda-8a563e94cdfa>

4.1.3 Risk and Mitigation Options

RUFI, the only MFI present in Rhino Camp and Imvepi, may face financial difficulties (as their current PAR is averaging 18% per month according to the national consultant report) and safety measures may be needed to keep refugee savings and trust in financial institutions.

4.2 Ethiopia

The previous analyses show how, compared to the two other countries of this study, Ethiopia presents unique features with regards to the low level of maturity of its private and financial sectors, issues around undercapitalisation and access to FOREX for market players, and the consequent constraints in terms of the supply chain. As a result, EUF might see its capability to impact markets limited by a shallow, fragmented, and small private sector, all exacerbated by increasing political instability. The following chapter offers an overview of preconditions at the national level that are necessary for EUF to take place, and whether these can be met in the ESDS settings.

4.2.0 National Preconditions for Deployment of End-User Finance

The table in Annex 3 provides an overview of preconditions to EUF in Ethiopia, categorised by type of service provider and offer, and broken down into physical, financial, and regulatory categories.

Each precondition benefits from a qualitative description and colour and number coding, as defined below:

3	It is a precondition
2	It could be a precondition/could facilitate the implementation of EUF
1	It is not a precondition

The table shows how engaging with VSLA could represent a relatively promising entry point to provide EUF in Ethiopia. The main reasons being the low level of infrastructure needed for their deployment and the high level of informality which facilitate access even in contexts of low or non-existent presence of mobile networks or lack of national IDs. Also, the community-level reputational linkage to (re-)payment allows prospective users with little or no collateral to obtain financing on the sole basis of a strong community operating as guarantor.

SACCOs follow similar considerations, with the disadvantages of higher infrastructure needs that are counterbalanced by their higher level of formality that allows prospective donors and investors to engage with them more easily, a veritable challenge for VSLAs.

Direct EUF from the ESP, whether from own funding or through a partner across the value chain (supplier, etc), is also a promising entry point, even though the cost of setting up infrastructures to be able to track and follow EUF often does not justify the limited profit margins on the EAS. This is especially true for leasing through PAYGO, which in Ethiopia requires registration through a MFI and opening of a bank account to be able to operate with mobile money, which represents a strong deterrent to larger uptake of this technology (even though new regulation is reviewing this constraint).

Finally, more formal sources of EUF, such as banks and MFIs, tend to come last, due to their high level of formalisation, transactional costs and requirements for prospective users that make them not very appealing for rural environments, both for the final users, and the ESP alike.

The full table with the national preconditions can be found in *Annex 3: National preconditions – Ethiopia*.

4.2.1 ESDS Preconditions for Deployment of End-User Finance

The table below provides an overview of the preconditions being met in the ESDS target areas and the Nguennyiel camp specifically.

The analysis seems to confirm the general situation already outlined in the previous chapters regarding the lack of presence of formal **financial institutions** in the refugee camps, with only one commercial bank active in the Region (Wegagen Bank), and some MFIs that are active in the host communities, and in some cases extend their services in refugee camps. It also shows a lack of semi-formal and informal FSP such as SACCOs and VSLAs, which were found to have a good potential for EUF in Ethiopia, given their low infrastructural needs and transaction costs, as well as their capacity to leverage on the communities as guarantors.

In terms of **physical infrastructure**, the mobile network coverage seems to be poor, especially in refugee settings, despite the widespread use of mobile phones. No physical branches of banks or MFIs, nor ATMs are present in the camps. Also, the national consultants could not find any evidence of any EAS agent in the camps. It should be noted that most of the above infrastructure is present in the host communities, instead.

Regarding **financial inclusion**, it is extremely low in the refugee camps, with only a few formal jobs and some mobile money accounts existing, despite the high level of literacy. The situation in the host community is much better, with a variety of instruments allowing increased financial inclusions.

Some of the above findings relate to limitations to **regulatory inclusion**. As a matter of fact, while ARRA's ID are increasing acknowledgement among service providers, it is still difficult for refugees to open bank accounts on that basis, only. It makes it easier, however, to obtain SIM cards.

Table 9: Preconditions in the Gambella camps - Ethiopia

PRESENCE/AVAILABILITY OF	IN THE REFUGEE CAMPS	IN THE HOST COMMUNITIES
INSTITUTIONS		
Commercial banks	NO	YES, Wegagen Bank available in Itang special woreda
Micro-finance institutions	NO	YES, 14 MFIs in the Gambella region
SACCO	NO	NO
VSLA	NO	YES
Solar kit distributors	NO	YES, Low quality small distributors
Improved cookstoves distributors	NO	NO, Two manufacturers exist
Mini-grid operators	NO	NO
PHYSICAL INFRASTRUCTURES		
Physical branches of banks/MFI	NO	YES
ATM of banks	NO	YES
Mobile network	YES, Very poor	YES
Mobile money agents	NO	YES
EAS agents	NO	YES
Phones	YES	YES
FINANCIAL INCLUSION		
National IDs	NO (refugee ID)	YES
MFI accounts	NO	YES
SACCO accounts	NO	YES
VSLA accounts	NO	YES
Rental contracts at ESP	NO	YES
Credit contracts at ESP	NO	YES
Leasing contracts at ESP (including PAYGO)	NO	YES
Mobile money accounts	YES	YES
Formal jobs	YES (at reduced salaries in DCA, IMC, ZOA and IOM, Action against hunger and RADO, LCH, Finnish Refugees Council)	
Credit history	NO	NO
Collaterals	NO	NO
Guarantors	NO	YES (Area administrators sometimes give grantee letters for group of youths and entrepreneurs)
Literacy / numeracy	YES	YES (but small portion of it; schools are opening)
REGULATORY INCLUSION		
National IDs	YES (Refugee ID)	YES
SIM Cards	YES	YES
Data from Country Consultants linked to present study		

4.2.2 Analysis of Existing Business Models on End-User Finance Schemes

The matrix above confirms the low level of maturity of both financial and energy markets, especially in refugee camps. Surprisingly, VSLAs and SACCOs do not seem to be common in the camps, hence limiting opportunities to explore these institutions as potential entry points in the short term. We could not find evidence of quality ESP in the area, further limiting opportunities for EUF. Considering all this, the team had to explore new, less-immediate options to providing EUF. The following considerations were taken into account:

- EUF being mostly focused on the affordability issue, and less so on the challenges related to supply chain that characterise imported products, it is suggested to rather focus on domestic products and services that are less affected by imports;
- Improved cooking solutions being a clear priority for the area, given the negative impacts that using traditional wood biomass has both in terms of gender-based violence and on the environment, as well as conflicts between host and refugee communities, it is suggested to focus on this sub-sector for an entry point;
- Given the lack of both ESP and FSP in the target area, if any intervention is to be developed, it is suggested to rather challenge EUF through the ESP directly, so as to reduce the number of players to be brought into the camps, and the relative complexity.

Given the above, we exchanged with the client regarding potential entry points, and discovered about its strategy for the Nguenyiel camp, focussed on supporting:

- The **design and local manufacturing of biomass stoves** that accommodate the need and uses of the refugee communities and perform better than traditional ones.
- The creation of a **charcoal briquettes' local supply chain**, with the aim to lower the environmental footprint linked to deforestation and gender-based violence linked to sourcing of wood biomass.
- The set-up of an **energy kiosk providing a variety of energy-related services** for both the host and refugee communities, to be operated commercially.

4.2.3 Appropriateness

The above ongoing initiatives promoted by GIZ in the Nguenyiel camp align with the considerations regarding potential EUF entry, given the scarcity of preconditions met. Specifically:

- It focuses on cooking by addressing the whole value chain, from the sustainable supply of fuel to improve consumption, by using domestic products and services which can be supported by GIZ while EUF can address affordability issues and increase uptake.
- Through the energy kiosk, there is the possibility to channel EUF through the ESP itself, hence not requiring an immediate involvement of FSP, which seem to be scarce in the area and would in any case impact negatively profitability in a sector with already very low marginality.
- For GIZ and UNHCR, it would mean enlarging the scope of those activities that are already being supported by the two agencies regarding cooking energy, by introducing a EUF component to further improve performance and effectiveness.

For all these reasons, it is evident how providing EUF on improved cooking practices in the Nguenyiel camp, by leveraging on the set-up of the energy kiosk as ESP, seems to be a natural choice.

4.2.4 Risk and Mitigation Options

Based on the above considerations, some risks still exist which need to be mitigated. These are:

Table 10: Risk and mitigation options (Ethiopia)

RISK	MITIGATION STRATEGY
Providing EUF in the framework of an already existing initiative of GIZ and UNHCR, poses risks in case this fails.	Having GIZ and UNHCR being behind both projects under the same ESDS umbrella, should ensure coherent and organic coordination between the two initiatives.
EUF only being able to address affordability issues, it relies on a well sustained and functional supply chain to operate.	This is crucial, as ruptures of stock will inevitably decrease the confidence and effectiveness of EUF. GIZ and UNHCR will have to ensure a reliable and constant supply of both charcoal briquettes and stoves.
Allocating EUF on a newly-established ESP, requires a high level of technical and financial support.	Training and financial support, especially at start-up phase both in terms of skills and working capital, is vital for the model to sustain.

The following chapter explores more in-depth the proposed approach to EUF in the Nguenyieel camp.

5. DEEP DIVES AND READY-TO-IMPLEMENT CONCEPTS AND PILOT PROJECTS

5.0 Kenya

5.0.0 Deep Dive

The goal of the proposed intervention is to increase access to financial products tailored to displacement settings to boost purchases of clean, sustainable and reliable energy services and products aimed at cooking, lighting and powering.

Kenya has benefitted from a plethora of initiatives aimed at increasing energy access in displacement settings, many of those aiming at de-risking private sector companies entering this unknown market (e.g., KOSAP RBF). In addition, banking institutions have also sharpened their focus on energy products and services, although mainly in urban settings – with limited attempts in rural areas (e.g., Equity Bank EcoMoto). KCB specifically has also taken a keen gender inclusion angle in its financial services to increase their clientele among rural women, also in the host communities surrounding Kakuma and Kalobeyei. The present proposed intervention aims at leveraging all these initiatives, to increase EUF for refugees and host communities while increasing the advocacy role of UNHCR around expanding opportunities for

refugees to access quality services and products, also supporting the local economy.

The proposed intervention would leverage the mature mobile-money landscape that has enabled the dissemination of PAYGO technologies for cooking, lighting, and powering. While the focus is on ICS and SHSs, we believe that some of the principles could also be adapted to mini-grid solutions through prepaid metering.

Specifically, the intervention proposed will build on KOSAP and KCB's women-centred approach.

The first initiatives declared that “driven by the imperative to provide equal opportunities across the entire Kenyan territory as key to achieving Kenya's Vision 2030, and the national target of achieving universal access to electricity by 2022, the Government of Kenya (GoK) seeks to close the access gap by providing electricity services to remote, low density, and traditionally underserved areas of the country. The GoK intends to use 150M USD of financing from the World Bank to deliver the Kenya Off-Grid Solar Access Project (KOSAP). The KOSAP project promotes these objectives by supporting the deployment of clean cooking technologies for households, and

Kenyan Off-Grid Solar Project (KOSAP): The Ministry of Energy, with the support of SNV and SunFunder, is implementing a USD 12 million RBF program aimed at expanding off-grid markets into remote areas. KOSAP encourages the uptake of OGS products in 14 of the most remote Kenyan counties, including Turkana, where Kalobeyei and Kakuma are located, which have the least-developed infrastructure and are relatively socio-economically underserved. The KOSAP RBF compensates solar companies for operations to cover unserved customers. The RBF is divided into three payments: 30% for initial market-entry activities, 60% on reaching pre-agreed sales target milestones, and 10% upon verification of providing after-sales services and warranties.

KCB: In 2016, Kenya Commercial Bank (KCB) partnered with Women's World Banking with the goal of increasing its offer to the Women Small and Medium Enterprise (WSME) sector and created a specific savings and loans offer for women-led self-help groups. Among the features of these female-centred products, there is the implementation of a new cash flow-based credit assessment, the development of a relationship management model focussing on women which also included intentional consideration of women's input in the design process, sex-disaggregated data collection, and use of input and data in decision-making. By the end of December 2019, KCB had disbursed 3,767 loans valuing KES 10.8 billion (about 98M USD) under this new approach, with a net profit loss of only 1.5%. Under the initiative, there were 75,683 accounts opened with a total of KES 8.9 billion (82M USD) in deposits.

Source: <https://www.womensworldbanking.org/insights-and-impact/new-evidence-on-how-to-empower-women-owned-businesses-in-kenya/>

the use of solar to drive electrification of households, enterprises, community facilities, and water pumps".⁸⁶

Regarding the second initiative, in March 2021, KCB announced "a 150M USD-loan to help the bank increase lending for climate-friendly projects and to smaller businesses, especially those owned by women. Energy access represents a clear focus on the initiative that is supported by IFC, a member of the World Bank Group, the Belgian Investment Company for Developing Countries (BIO), the SANAD Fund for MSMEs (SANAD), and Symbiotics.⁸⁷ KCB Bank Kenya has a history of tailoring products to meet the needs of businesses in different sectors. Its Women's Market programme includes capacity building programmes, insurance products, and modified credit processes and collateral requirements".⁸⁸

5.0.1 Implementation Plan for the Pilot

Objective:

The underlying objective of this intervention is to leverage current and successful initiatives to increase the financial capability of refugees, especially women, in Kakuma and Kalobeyei while building their self-reliance. The present intervention proposes three specific objectives:

- lobbying and advocacy through UNHCR to expand KOSAP and KCB's Women Market to Kalobeyei and Kakuma settings, also tackling the documentation requirements to access financial services;
- support the two initiatives with a dedicated guarantee fund to include refugee clients, mainly women;
- strengthen women-centred market uptake (assessments, activation, women-to-women businesses, saving groups/VSLAs).

⁸⁶ *KOSAP RBF and Debit Facility, Government of Kenya* (2020)

⁸⁷ BIO Investing, *IFC, BIO, SANAD & Symbiotics Announce Loan to KCB Bank Kenya for Green Projects, SMEs* (2021) Retrieved August 30th, 2021.

⁸⁸ Financial Alliance for Women, *Member Profile KCB Banks* (2021) Retrieved August 30th, 2021.

Targets groups:

The proposed programme is set to benefit:

- Refugees living in Kakuma and Kalobeyei camps, especially women;
- Host community of Kakuma and Kalobeyei.

Desired impact

Through the intervention, KOSAP and KCB will benefit from market intelligence that would highlight the potential expansion of the client base for the two initiatives. GIZ/UNHCR will support KOSAP and KCB with a dedicated refugee (women-centred) fund to access tailored loans (first phase) and guarantee against default rates (once the funding mechanism is fully in place). Additionally, GIZ/UNHCR will facilitate access to and understanding of the two refugee camps – in-

cluding a specific focus on VSLAs and women-focused saving mechanisms already present. This will be an initial step in narrowing the financial gender gap in the camps. In 2018, elaborated the gaps in Kakuma in terms of bank accounts, business ownership, and mobile phone penetration. All these factors have a direct correlation to access to digital/mobile-money based financing.

To facilitate full access to the two initiatives, UNHCR will lobby for extended validity of Alien IDs and the possibility to access financial services through the refugee registration number (manifesto) provided by the Refugee Affairs Secretariat (RAS). More broadly, having access to extended IDs will also increase the possibilities to benefit from PAYGO services. This in turn will support not only the acquisition of products, but also the creation of credit history that has proven beneficial also for other financial products and services.

Figure 9: Business ownership, registration, and initial investment by gender (IFC, 2018)

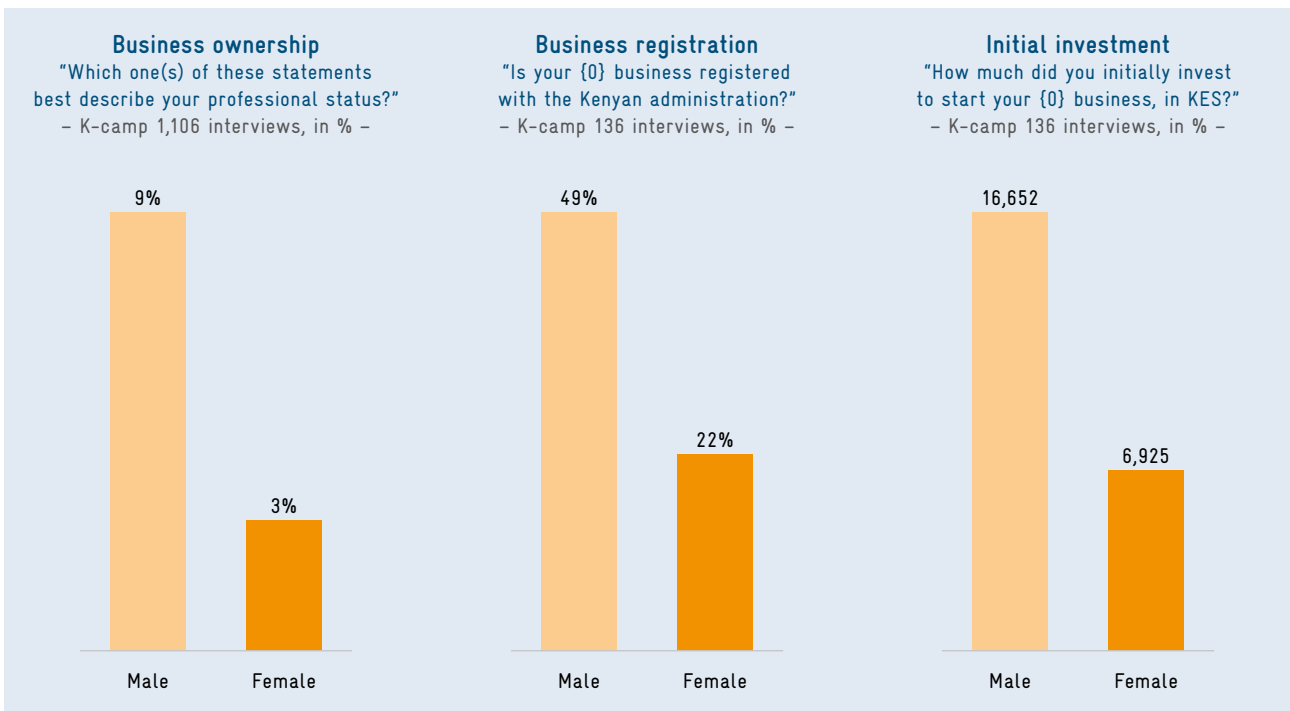
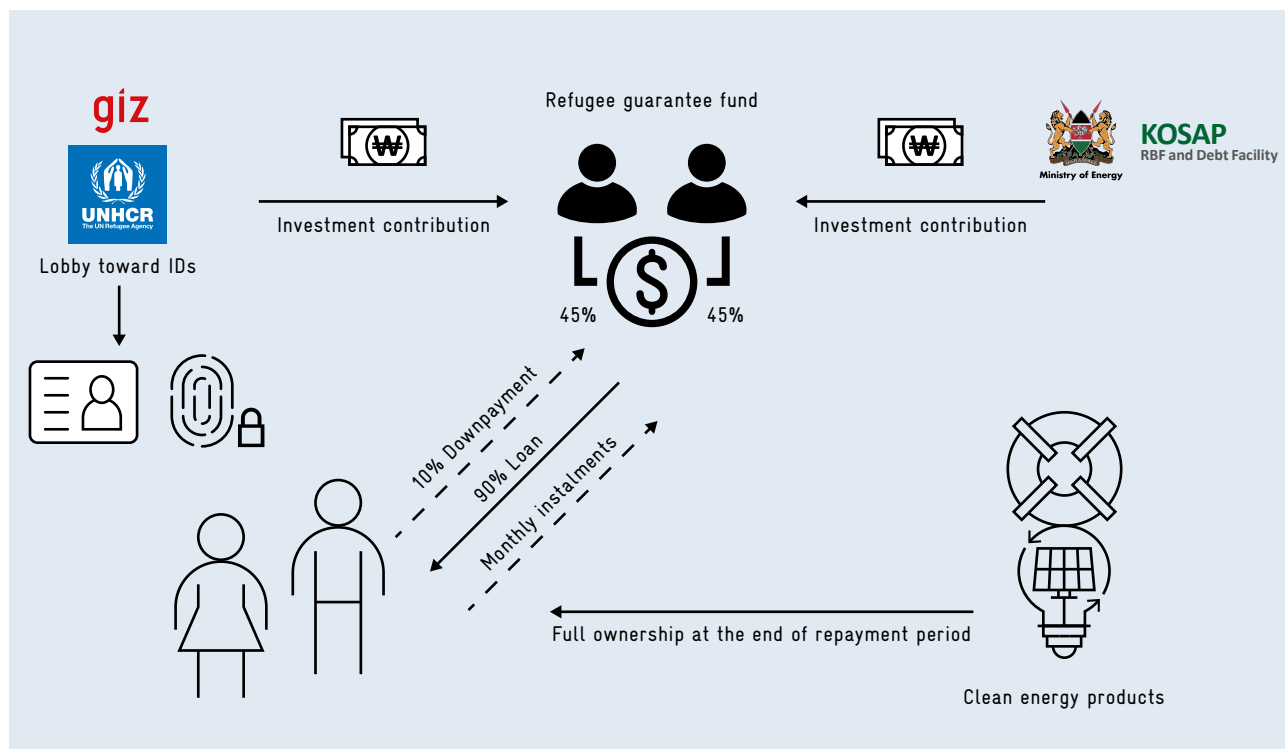


Figure 10: KOSAP funding scheme



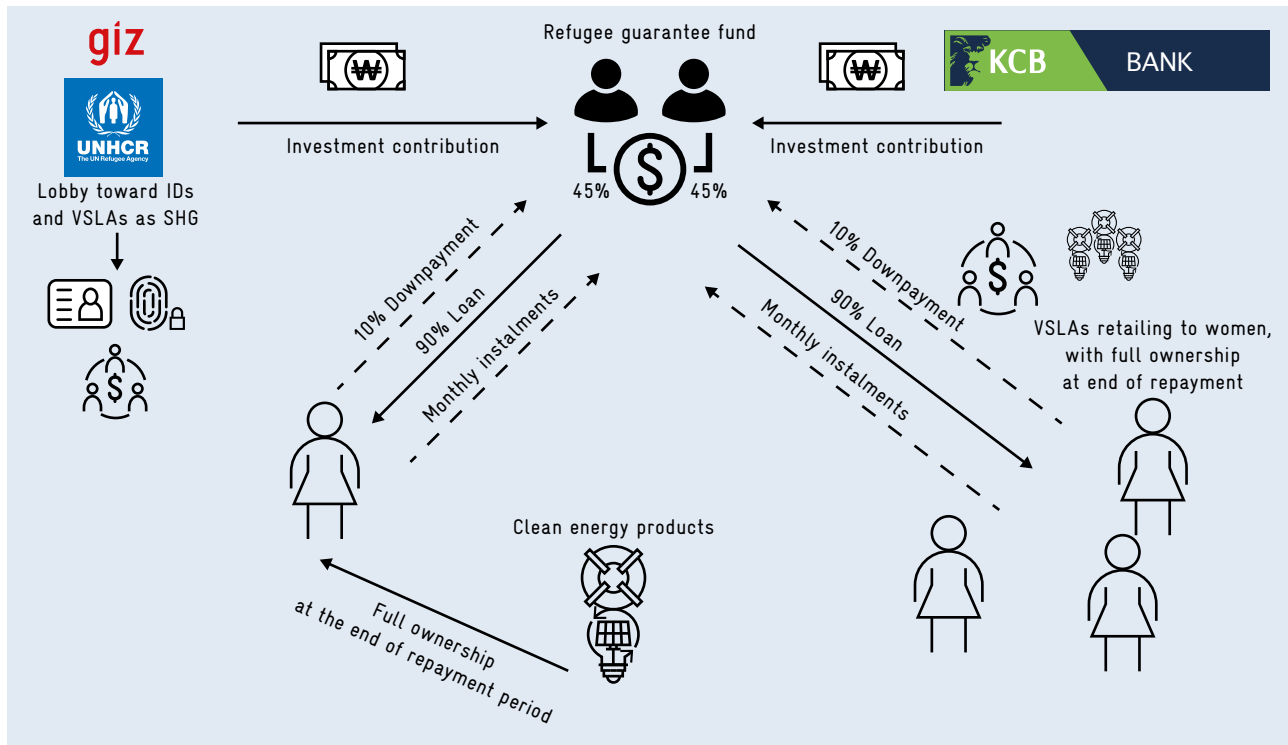
Funding schemes

We propose leveraging existing financial models to de-risk EUF by:

- Connecting a GIZ-sponsored guarantee fund to **KOSAP**, through which refugees will be able to access loans to acquire energy products (cooking, lighting and powering).
- Connecting a similar guarantee fund to **KCB Women Market**, specifically through their *Tuungane Current* line that is dedicated to Self Help Groups. In this case, the proposed intervention would be associated with VSLA

groups already present in the camps and registered with the Social Service, for which UNHCR leverage would be necessary. KCB would acquire a stock of energy products under the GIZ/UNHCR funding that could be accessed against payment by refugee women a) individually, also accessing a loan through the fund (the equipment would be sequestered in case of default after a grace period), or b) as a group with the aim of creating a business opportunity through which women would become energy products retailers – building on a woman-to-woman business.

Figure 11: KCB funding scheme



- For the funds associated with the two initiatives (KOSAP and KCB), similar conditions would apply. To access the loan, the client will have to commit to the initial product down payment (about 10% of the value), and the risk of default over the remaining 90% of value will be shared 50% by the guarantee fund and 50% by KOSAP/KCB. Once they demonstrate their capacity to repay the loan, the fund will be transferred to KOSAP/KCB to only guarantee against default, while the loans to refugees would be disbursed as per the normal programme. As the SHSs will be purchased through PAYGO, in case of missed payment the system would be blocked; if missed consecutive payments, the products will be sequestered. The address of the client will be recorded in the loan application (ID documentation). Preferably, PAYGO payments will be made via mobile credit, by sending a text message. Usually, devices present a remote monitoring system that can be activated via a mobile network connection. Even those PAYGO SHSs that do not feature remote monitoring systems, have a SIM card

- built in to allow the provider to shut them down remotely if payments stop. Additionally, some top-range devices have a GPS tracker that would allow tracking the product at any point in time.⁸⁹ The risk of flight is greater for ECSs, as they do not have tracking technologies embedded. To mitigate the risk, woman-to-woman sensitization activities will be performed to promote timely repayments.
- Both funds could be linked to the current mobile money platforms used by the ongoing initiatives, reducing admin costs and facilitating tracking of instalments payment. This would contribute to the creation of a credit history for refugees, enabling further financial inclusion opportunities.

89 IRENA, 2020, Pay-As-You-Go Models Innovation Landscape Brief, https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Jul/IRENA_Pay-as-you-go_models_2020.pdf?la=en&hash=7A2E7A7FF8B58AB7748670876667628A39DE40D5

Stakeholders

The success of this project will include the cooperation and resource mobilization of key stakeholders including:

- **Women within the refugee camps and host community.** The intervention has a clear **inclusion angle**, as women are currently more limited in accessing financial products. In Kenya at large, only 19% of women saved at a financial institution in 2017, although 65% of women are engaging in savings behaviors. Similarly, only 12% of women in the same year borrowed from a bank, yet 62% reported borrowing money from somewhere.⁹⁰ The situation is even direr for refugee women. The proposed intervention has an intentional inclusive angle, also considering that women are often key contributors in the decision-making process and financial allocations for household expenditures. The intervention also leverages VSLAs as important avenues for sensitisation and woman-to-woman retailing.
- **KCB Bank Kenya.** This is a subsidiary of the KCB Group that operates in seven countries mainly within the East Africa region. It is also amongst the two banks that can be found in the host community of Kakuma and Kalobeyei. The bank reports that 98% of its transactions (valued at KShs. 1.9 trillion⁹¹) are performed outside the physical branch and **rely on digital platforms**. The bank's mobile lending products (Fuliza, KCB Mpesa, and Vooma loan) have seen a resurgence in 2020 and 2021. The bank has a clear focus on the outreach of female clients, such as the *Women Proposition* programme that has provided credit facilities worth KShs. 24.3 billion⁹² to 173,000 women-led businesses, or the Tuungane Current programme that targets female self-help groups. Under the present intervention, KCB is required to match the GIZ/UNHCR-supported guarantee fund.
- **KOSAP.** The 150M USD facility sits under the Ministry of Energy and provides a facility for RBF and debt programmes that are geared to increase access to energy to rural and marginalised clients in Kenya. **KOSAP works as an implementing partner as 50% of the fund is co-managed with KCB Bank.** This collaborative effort provides the financial and technical expertise needed to disseminate the funds. The KOSAP facility is managed by SNV and SunFunder, who **offer grant and fund management in the local context and tailor financial/innovative loan products** to solar and energy enterprises. Under the current intervention, KOSAP is required to allocate a dedicated fund that will be matched by GIZ/UNHCR to create the guarantee fund.
- **UNHCR.** UNHCR has been operational in Kenya in line with its international mandate and on invitation from the government of Kenya for over fifty years. Refugees and asylum seekers from countries surrounding Kenya have been received and provided with assistance. In addition, UNHCR Kenya has provided much-needed aid to persons who have been internally displaced from their homes as a consequence of unrest, fighting and environmental factors such as flooding. UNHCR, in its programming and promoting peaceful co-existence, also implements interventions in assistance to members of refugee-hosting areas. This is to mitigate the creation of economic imbalances between refugees and the host communities as well as prevent conflict.⁹³ UNHCR's presence in the camps offers an entry point also in terms of **contextual knowledge and protection mandate**. UNHCR also has lobbying and advocacy capacity that would be key to the implementation of the proposed initiative. Specifically, UNHCR would need to lobby and advocate for the expansion of KOSAP's focus on displacement settings and KCB Women Market initiative in the refugee camps (while it is already present in the host communities). Furthermore, the proposed initiatives seeks UNHCR advocacy to expand and extend the types of ID considered accept-

90 The World Bank, Global Financial Inclusion 2017, <https://microdata.worldbank.org/index.php/catalog/3371>

91 Equals to 17.317 million USD as of August 30, 2021.

92 Equals to 213 million USD as of August 30, 2021.

93 UNHCR Kenya, <https://www.unhcr.org/ke/about-us>

able to access these services. Finally, UNHCR should leverage its contextual knowledge to support the women-centred market approach proposed.

- **GIZ/ESDS programme**, through funding from the German Federal Ministry for Economic Cooperation and Development (BMZ), aims at collaborating with UNHCR to support the implementation of the Global Compact on Refugees in the Humanitarian-Development-Peace Nexus. Among its mandate, two tasks are particularly beneficial to the proposed intervention: a) improving policy frameworks by advising policy-makers and UNHCR on strategic energy planning, and b) increasing energy access for households, small businesses, and social institutions through market-based approaches. Under the present proposal, GIZ/ESDS would support UNHCR in conducting the advocacy activities described above, while setting up the funds to be matched by KOSAP and KCM. GIZ/ESDS will also ensure quality assurance and dissemination of the lessons learned within the humanitarian and energy sectors.
- **Directorate of Renewable Energy**. Under the National government, the Directorate of the Ministry of Energy is tasked with quality control and coordination of renewable and clean energy products at a county level. Cooperation with the Directorate promotes the delivery of appropriate renewable energy technologies and public awareness creation on renewable energy options.
- **Ministry of Interior, Register of persons and Refugee Affairs Secretariat (RAS)**. This is the governmental department that is in charge of registering and processing refugees within the country. During the study, numerous stakeholders mentioned how lack of documentation prevents refugees from accessing a wide range of financial services. RAS will provide support in policy and regulatory advocacy that will need to be carried out, for amendments on the validity period of Alien IDs and the possibility of using the RAS manifesto in lieu of the ID card.
- **Mobile network providers**. GSMA found that “across Kakuma Refugee Camp and the host community, there is widespread mobile network coverage (2G, 3G), as well as airtime and mobile money agents, kiosks and shops. Safaricom is the leading provider in the area. UNHCR studies show that “In Kenya, over 72% of refugees have access to 3G connectivity, with much of the rest covered by 2G.”¹³ A research study by the humanitarian organisation, ELHRA, found that 62 per cent of refugees have internet access, mainly through their mobile phone. Without these mobile services in place, mobile enabled PAYG SHSs would not have a viable payment mode, as payments are made via mobile money.”⁹⁴
- **EnDev / SNV**. EnDev is a strategic partnership to support access to modern energy. It is promoted by Germany, the Netherlands, Norway, and Switzerland. GIZ and the Netherlands Enterprise Agency coordinate the programme. In Kenya, EnDev facilitates access to improved cookstoves and promotes small solar systems for rural inhabitants. Through EnDev, SNV promotes the Market Based Energy Access (MBEA) project to support sustainable market-based energy access for cooking and lighting by supporting clean energy entrepreneurs.
- **County Government of Turkana**. Turkana, in the north-west of the country, is the 2nd largest county of Kenya with 77,000 km². It hosts Kakuma and Kalobeyei camps.
- **Energy and Petroleum Regulatory Authority (EPRA)**. EPRA regulates the generation, importation, exportation transmission, distribution, supply and use of electrical energy. It addresses issues around licencing and regulations, economic regulation, enforcement and compliance, and complaints and dispute regulations.

94 GSMA, Mobile-enabled energy for humanitarian contexts https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/02/Mobile_Enabled_Energy_M4H.pdf

Pre-conditions

As analysed in the chapter above, some general preconditions need to be met to stimulate EUF in Kakuma and Kalobeyi, including: *institutional presence* to facilitate market access; *physical presence* of financial providers and retailers of energy products, to increase the sense of trust among new clients; *availability of financial products* that could be easily be accessed by refugees; and a more permissive *regulatory system* that allows for multiple forms of IDs in relation to financial services, also connected to energy products through PAYGO. Specifically for the proposed project to be implemented the following preconditions need to be met:

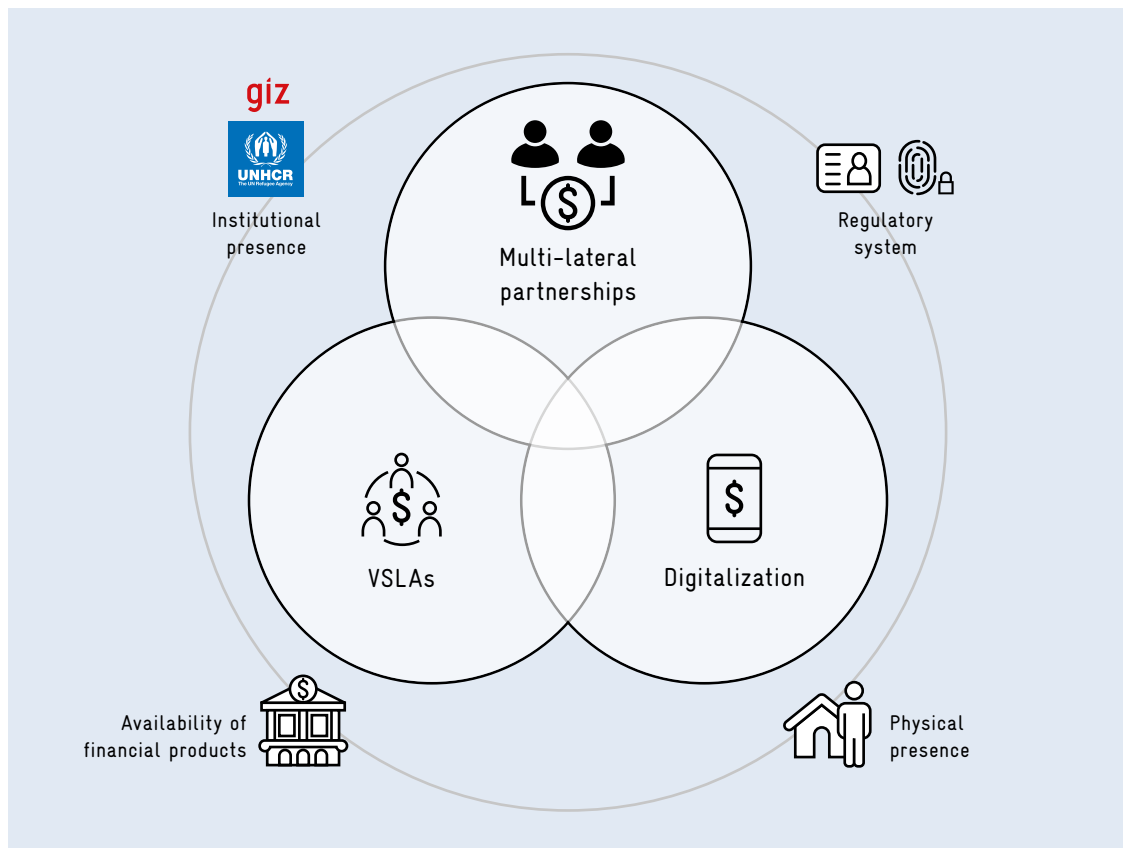
- **Multi-lateral partnerships with existing initiatives.** The proposed intervention will need the involvement of key players, including VSLAs, banks/ financial institutions (KCB and KOSAP), and energy products distributors.

- **Digitalization and mobile money.** Widespread use of mobile money will ensure ease of transaction and accessibility to the loan. Digital records will also be beneficial toward the creation of credit history.
- **VSLAs.** Leveraging VSLA would increase peer retailing and support to women-led enterprises. Woman-to-woman business models have proven successful in other humanitarian settings when it comes to energy access.

Funds

As the proposed intervention builds on two existing initiatives, the bulk of funding would go toward the creation of the two funds to be hosted in the existing initiatives supported by KOSAP and KCB, also to reduce the costs associated with setting up new funds. The research conducted in parallel to this study in Kakuma and Kalobeyi has highlighted that about 27% of households do not have access to reliable energy sources (21%

Figure 12: Pre-conditions for implementation



relying on diesel, and 6% of dry cell batteries), while 48% of households are connected to solar PV systems and 30% to mini-grids. To cover the 27% of households yet to have reliable sources of energy for lighting and powering through SHS, it is estimated that the overall value of the funds to be associated with KCB and KOSAP should be around **270K USD**. This calculation considers a default rate of 50%, as highlighted in similar contexts,⁹⁵ for SHSs of the value of 120 USD. The risk would be borne 50% by the GIZ fund and 50% by KCB/KOSAP (the fund would need to be adjusted should the two initiatives not be prepared to share this proportion of risk). When it comes to clean cooking, 85% of households are still reliant on basic three-stone fires. The GIZ-promoted fund should be about **300K USD** to cover third-party certified stoves of the value of 35 USD; in this case, considering a higher flight risk, we have calculated a 60% default rate and maintained the assumption that 50% of the risk will be borne by the two existing initiatives. The total value of the clean energy fund (lighting, powering and cooking) would be in the region of **570K USD**.

Additional resources will be required to conduct the initial market analysis (estimated at 60K USD), design and support of demonstration and activation campaign (50K USD, also in collaboration with private companies extending their market), support to VSLAs business activities (50K USD), and UNHCR lobbying/advocacy toward extended ID options (staff time, events).

Duration

The initial setting up of the project is expected to take 6 months with an additional 12 months for implementation. The guarantee funds will, however, remain after the setting up project reaches its end. Post-implementation monitoring (after 12 months) is encouraged to track key performance indicators.

95 Power Africa, De-Risking Pay-As-You-Go Solar Home Systems In Uganda Refugee Settlements Project, 2020, <https://data2.unhcr.org/en/documents/details/78496>

5.1 Uganda

5.1.0 Deep Dive

As a result of the COVID-19 restrictions, many refugees have lost their livelihoods and income, especially when you consider they were usually engaged in informal employment, or depended on travelling outside the settlement.⁹⁶

As a result of the first lockdown in 2020, employment rates had fallen to 32% by March 2021, which is a reduction of 24% in comparison to before lockdown.⁹⁷ The COVID-19 restrictions also seem to have affected refugee entrepreneurs, as the ownership of businesses among refugees fell from 37% (in March 2020) to 23% (in March 2021).⁹⁸ Interestingly, while employment rates and family business among refugees have not recovered since the first lockdown, improvements were observed among Ugandans.⁹⁹

In addition to the loss of livelihoods, refugees continue having to overcome multiple shocks, including ration cuts (by 40%) from WFP and high market prices due to travel restrictions. Only 10% have reported having assets they could sell to improve their situation.¹⁰⁰ The second wave of COVID-19 restrictions are likely to decrease the ability of refugees to support themselves and increase the adoption of ineffective coping mechanisms, including the sale of their productive assets, as well as child marriage and earning money in exchange for sex.

96 REACH (2021), Rapid Briefing Note: Impact of the COVID-19 resurgence in refugee-hosting districts Uganda, July 2021 https://reliefweb.int/sites/reliefweb.int/files/resources/REACH_UGA_COVID-19-briefing-note_Refugee-districts_July21.pdf

97 The World Bank, UNHCR and the Uganda Bureau of Statistics, High Frequency Phone Survey, round 3; 2021.

98 The World Bank, UNHCR and the Uganda Bureau of Statistics, High Frequency Phone Survey, round 3; 2021.

99 The World Bank, UNHCR and the Uganda Bureau of Statistics, High Frequency Phone Survey, round 3; 2021.

100 Opportunity International (2020), Refugees and COVID-19: Impact on Food Prices, Consumption, and Distribution, <https://www.opportunity.org.uk/content/UK/news/knowledge-exchange/rise-refugees-and-covid-19-project-brief-opportunity-international-uk.pdf>

The current lockdown continues to put pressure on the host community who often share the same resources and infrastructure as refugees. There is a risk of rising tensions over competition for increasingly scarce resources.

Access to finance is a core constraint to increasing the market participation of refugees across Uganda. Small scale producers and rural entrepreneurs living in refugee settlements, especially women (51% of the population in both Imvepi and Rhino) and youth (21% of the population in Imvepi and 24% in Rhino), are unable to expand their livelihoods or improve their financial resilience, as few FSPs are willing to serve them. Refugees typically lack both the collateral and credit histories necessary to obtain financing and FSPs face high operational costs to assess, disburse, and collect repayment of loans made to rural and remote clients.

The rapid spread of digital finance in Uganda has created new products and productive assets from FSPs interested in serving refugees. This eliminates the need to travel to distant brick-and-mortar financial institutions using transfers and remittances and peer-to-peer payments. However, the potential for digital finance to lead to financial inclusion (a core objective of the Government of Uganda's Comprehensive Refugee Response Framework) will remain limited without addressing key gaps in the digital financial ecosystem such as: financial literacy, a sufficient network of agents, and firms that offer DFS-enabled services (e.g., PAYGO solar companies), enabling access to formal savings and loan products.

5.1.1 Implementation Plan for the Pilot

Objective:

The goal of the proposed intervention is to increase access to financial products, digitally linking the VSLAs and SACCOs to banks, to boost purchases of clean, sustainable and reliable energy services. It supports the development of energy-related business activities along the value chains to trigger the uptake and adoption of clean energy solutions.

Sustainability will be embedded into the i design through an emphasis on self-financing and self-replicating private-sector and community-led solutions. By stimulating market systems, the project will ensure greater sustainability without becoming an integral player. Private sector actors benefitting from grant funding will sign sustainability plans at the outset of their work describing how they intend to use the funds received to address short-term bottlenecks and sustain or scale up their activities after their funding ends.

A positive biodiversity conservation impact will be ensured through clean energy kiosks (efficient cookstoves, solar panels, agro-waste solutions and production of briquettes for cleaner cooking). They will also be designed to become self-sufficient businesses in the long run. The intent is to demonstrate how a hybrid development-business approach (with investment in social sustainable bankable projects) combined with a catalyzing grant, and partnerships with non-profits working in community engagement, can deliver social impacts.

Desired impact:

Refugees and vulnerable host communities will transition from the current state of reliance on humanitarian support to self-reliance. Farmer organisations, SMEs (local private sector), CBOs and the public sector (district government) will transition from the current state of low capacity (skills and resources) and low interest in engaging with and investing in the activities, to a future state of consistent and high-quality delivery of extension and advisory services in good production practices/off-farm activities, post-harvest handling, and market information to the target beneficiaries.

Impact measurement and indicators:

Key impact and outcome indicators will look at food security and household resilience, including (with gender and age disaggregation):

- The number of full-time equivalent jobs created (including self-employment).
- The number of groups and VSLAs linked to a FSP (and actively saving and receiving loans).
- The number of active agents for financial and energy services created.
- The number of Clean Energy solutions sold.

Systemic impact on the market will be measured by focusing on poverty reduction and increased investment from businesses in the two locations. The clean energy kiosk will also contribute to cleaner cooking, reduced carbon emissions and deforestation.

Stakeholders:

- **Local communities** (SACCOs, VSLAs and Refugee Led Organisations) will be the main actors of the design and implementation phases.
- **Local government and NGOs**, also involved in the design and implementation, will contribute to the different activities linked to their development and assistance missions.
- **Financial, Communication and Energy Service Providers**, also involved in the design and implementation, will support the development of business opportunities and link with the local communities to provide adapted services.
- **UNHCR, OPM and implementing partners**, also involved in the design and implementation, will support the local communities providing complementary services to the local communities in line with their mission and projects.

Table 11: Implementing Partners in Imvepi and Rhino Settlements - Uganda

Sector	Imvepi settlement	Rhino Camp settlement
Energy & Environment	DanChurchAid (DCA), Uganda Red Cross Society (URCS).	Caritas Nebbi, Danish Church Aid (DCA), Save the Children (SCI), The Victims Relief Alliance (TVRA).
Livelihood	Danish Refugee Council (DRC), Joint Aid Management (JAM), Kulika, Vision Fund International (VFI), Welthunger Hilfe (WHH).	Associazione Centro Aiuti Volontari ACAV, Danish Refugee Council (DRC), Joint Aid Management (JAM), Kulika Uganda, Malteser International (MI), PALM Corps, Welthungerhilfe (WHH), World Vision, ZOA, GIZ RISE, RICE.

Current progress against OPM and UNHCR objectives in Imvepi and Rhino settlements

The results tabulated below track the progress for Quarter 1 of 2021, and are well below the desired objectives:

Table 12: Energy and livelihood results against OPM and UNHCR objectives in Imvepi and Rhino settlements – Uganda

Objectives	Results in Imvepi*	Rhino Camp**
Energy: Number of Households using alternatives and/or renewable energy (Q1).	14% (of the 1,499 Households targeted).	5% (of the 13,126 Households targeted).
Livelihood: Number of refugees receiving financial literacy training.	1% (of the 2,000 refugees targeted).	0% (of the 2,000 refugees targeted).

* OPM & UNHCR (2021), Performance Snapshot, Uganda Refugee Response Plan (RRP) 2020–2021, Imvepi Refugee Settlement, Quarter 1 2021, <https://data2.unhcr.org/fr/documents/download/87138>

** OPM & UNHCR (2021), Performance Snapshot, Uganda Refugee Response Plan (RRP) 2020–2021, Rhino Camp Refugee Settlement, Quarter 1 2021, <https://data2.unhcr.org/fr/documents/download/87136>

In Q1 of 2021, US\$1.8 million of funding¹⁰¹ was allocated to energy and environment, and US\$19.9 million to livelihoods and resilience. At present there is no available information on the targeted settlements.

Pre-conditions required:
No pre-conditions to be met

Main activities to be carried out:

The Project will layer a sustainable market system development approach and an HCD lens to diversify livelihoods in refugees and host communities with a focus on youth- and women-led opportunities. To innovatively integrate both push and pull approaches in line with the CRRE, the Project will roll out a segmentation approach which will deliver concrete and tailored products and solutions for different groups.

101 UNHCR (2021), Uganda Refugee Response: RRP Funding Dashboard Q1 2021, <https://data2.unhcr.org/fr/documents/download/87232>

The overall goal will be to increase the access to services and assets that are key for long-term resilience. An embedded Learning Kiosk will serve as the cornerstone of the activity’s adaptive management mechanism. The Learning Kiosk will be used to establish feedback and reflection mechanisms, consolidate and generate evidence to support programmatic pivots, and document learning on scalable best practices for locally-led market systems approaches and nexus programming in humanitarian and protracted crises situations.

Project Phases

Phase 1: Assessment, Challenge and Opportunity Mapping

The Project will leverage expertise in ecosystem analysis, market-based approaches, and HCD to confirm the main challenges for EUF and access to PUE. Push/pull strategies, detailed below, will be designed to enable women, young refugees and vulnerable host communities to access proper EUF and PUE. This will be based on a thorough gendered analysis, formal and informal rules, and regulations of the market systems and target group needs.

The detailed analysis of the holistic market system will enable the design of strategies that are linked, complementary, and founded on the understanding of needs and protection challenges. As well as based on the market realities and trends for resilient, inclusive, and sustainable growth of the refugees, vulnerable host communities, and businesses.

Phase 2: Implementation

Engaging the community, stakeholder, and challenge-mapping will be a key milestone. Using a community engagement approach, the project will set priorities jointly with community members, develop community action plans, and conduct participatory evaluations to ensure increasing community ownership and participation in economic development.

Community members will be fully involved in the definition of the priorities and activities to be handled both for households and locally led private sector businesses. This will be carried out through the use of gender transformative activities that address the barriers identified in the segmentation process, as well as utilising age and conflict-sensitive lenses.

Push and Pull Strategies

Push components:

The Project will offer a bundle of support and services working directly with the mobilised refugee and vulnerable host women and youth to provide them with the human, financial, and social assets needed to be part of the market system. The specific assets that are needed will depend on the assessment and segmentation findings. These types of assets and services are detailed below.

1. Financial literacy and digital literacy training:

Training for the target groups will be provided, including through the use of VSLAs, to build the capacity of local people to take advantage of the information about financial and renewable energy. The aim will be to contribute to closing gaps in the ecosystem in isolated communities by working with FSPs (mobile money operators and micro-finance banks) and their network of agent. They will train, equip, and support youth and women from the settlements and local communities to access appropriate financial and energy services and potentially launch new microenterprises as agents.

2. Business, Technical and Vocational Education and Training (BTJET) and Life Skills Development:

Young people will be supported in accessing BTJET skills through engaging the private sector and vocational institutions. For example, skills to improve post-harvest handling, packaging, and distribution could be developed. Additionally, mastering the following six critical core competencies will support young people transition into economic development.

- Social skills
- Communication skills
- Positive self-concepts
- Self-controls
- Higher order thinking
- Job search skills

This approach will complement the business and vocational training.

3. Mentorship and business development support:

This is for emerging entrepreneurs to be accompanied in their selection of new economic activity related to finance and energy, exposed to peer-experiences, and equipped with skills and project management tools.

4. Clean Energy Kiosks:

These kiosks will offer a facility that can serve as aggregated storage and/or transport. Training will be provided to the community, as well as information about how the use of the energy technologies deployed at the kiosk contribute to income generation.

Pull components:

Pull interventions will facilitate inclusive and sustainable market exchange. They will be refined based on the assessment phase and are likely to include:

1. Clean Energy Kiosks:

The establishment of these will create a circular economy model to harness renewable energy to power productive uses of electricity and generate income for refugees and host communities. This plant can power multiple value chains by providing an agricultural processing center (milling, drying, shelling, packaging, etc.), a charging station for market access facilitation, a cold chain (reduction of post-harvest losses), and processing agro-waste into briquettes for clean cooking, etc.

2. Market Linkages:

The pilot will provide market system facilitation, coordination, and a package of enterprise development solutions tailored to the needs, capacities, and opportunities available to different target groups. For the different value chains and segments, business cases will be developed to link the private sector to youth/women (emerging entrepreneurs/households and SMEs) and other system players (local government); demonstrating cost-sharing opportunities to reduce private sector risk and create incentives that foster inclusive and sustainable business models. To implement those business cases along the selected value chains, deals with on and off-farm private sector actors will be signed, the capacity of the staff of project and government will be built, and coordination between stakeholders will be provided.

3. Distribution and maintenance of Clean Energy Solutions:

The development of last mile distribution of ESP solutions will be developed, where more women will be targeted. This will include identifying and training, establishing distribution and maintenance agreements with small business owner SACCOs, related VSLAs, and energy kiosks to become agents.

4. Access to Financial Services:

Access to financial services such as credit will be facilitated, mainly by linking FSPs with groups, VSLAs and SACCOs. Digitization will also be used as a tool to facilitate the connections between FSPs, other market actors, and the target segments. Furthermore, digital solutions like mobile and agent banking will be applied.

The project will also support FSPs in the deployment of their lending activities and agent networks in the target areas. Additionally, a Grant Facility (GF) will be setup and will cover a range of options such as small grants and startup kits for emerging social entrepreneurs and recent BTVET graduates. As these people cannot yet qualify for loans as catalytic investments (conditioned to the development of business plans) or private sector co-investment into innovation pilots that can help address bottlenecks in the programme.

MELI Framework & Learning Agenda

Through the Monitoring Evaluation Learning and Improving framework, learning questions will be established with a focus on evidence-generation, documentation of innovation convening government, private sector, non-profit, academic, and innovation stakeholders of the CRRF approach.

Risks and mitigating measures

Table 13: Risks of Implementation – Uganda

Risks	Severity	Mitigation Measures
Stakeholders don't implement the good practices of involving the local communities in the design and management of interventions, thus missing the essential point of sustainability.	High	Include Local Communities representatives in Working Groups, integrate their feedback in the minutes of the meetings.
Stakeholders don't accept a market-based approach.	High	Include Energy and Financial service providers in Working Groups.

Duration:

The Project will need at least three years to change the current behaviors, put in place the approach, see results, improve and set the foundations of a continuous improvement.

5.2 Ethiopia

As discussed in the previous chapter, we explore the possibility to provide EUF through a newly established ESP in the cooking sector through charcoal briquettes and stoves.

5.2.0 Deep Dive

This deep dive is composed of four main components: the charcoal briquetting production, the user-centred design of cookstoves, the set-up of an energy service hub/kiosk, and the creation of a EUF mechanism.

Charcoal briquetting production

Given challenges related to imports of fuels such as LPG, production of ethanol, and lack of electricity in the area, traditional biomass-based fuels seem to be the most appropriate for the area. On this basis, GIZ and UNHCR are exploring how to improve the efficiency of such traditional fuels, including charcoal briquettes, which seem to be promising on various levels. If properly supported, this supply chain, which seems to already exist in an early stage of development, can effectively deliver cleaner cooking systems.

User-centred design of cookstoves

GIZ and UNHCR found that the quasi-totality of cookstoves used in the ESDS camps is the three-stone type, despite various past campaigns aiming at distributing improved biomass-based cookstoves among both host and refugee communities. According to the national consultants, about 73% of our respondents said that members of their households collect firewood from the forests located around the community, which exposes them to high risks of gender-based violence and puts pressure on the surrounding forests. Combined, these factors lead to a high level of dissatisfaction among respondents with the current solution as the process consumes far too much of their time and energy. Yet, given that improved solutions were distributed over time, why did the uptake remain almost nil?

It was found that neither of the proposed solutions to date accommodated local cooking practices, especially to South Sudanese's cooking customs, therefore hindering any efforts to reduce fuel up-take and consumption through modern solutions. As a result, since early 2021, GIZ and UNHCR have partnered to design a new biomass multi-fuel cookstove (burning briquettes, wood, harvest residues and charcoal) that would best fit the local cooking needs by adopting a user-centred design approach. It is hoped that once the new cookstoves are designed and accepted by the local communities, a local manufacturing artisanal industry is created to support local livelihood activities and sustain supply.

Set-up of an energy service hub/kiosk

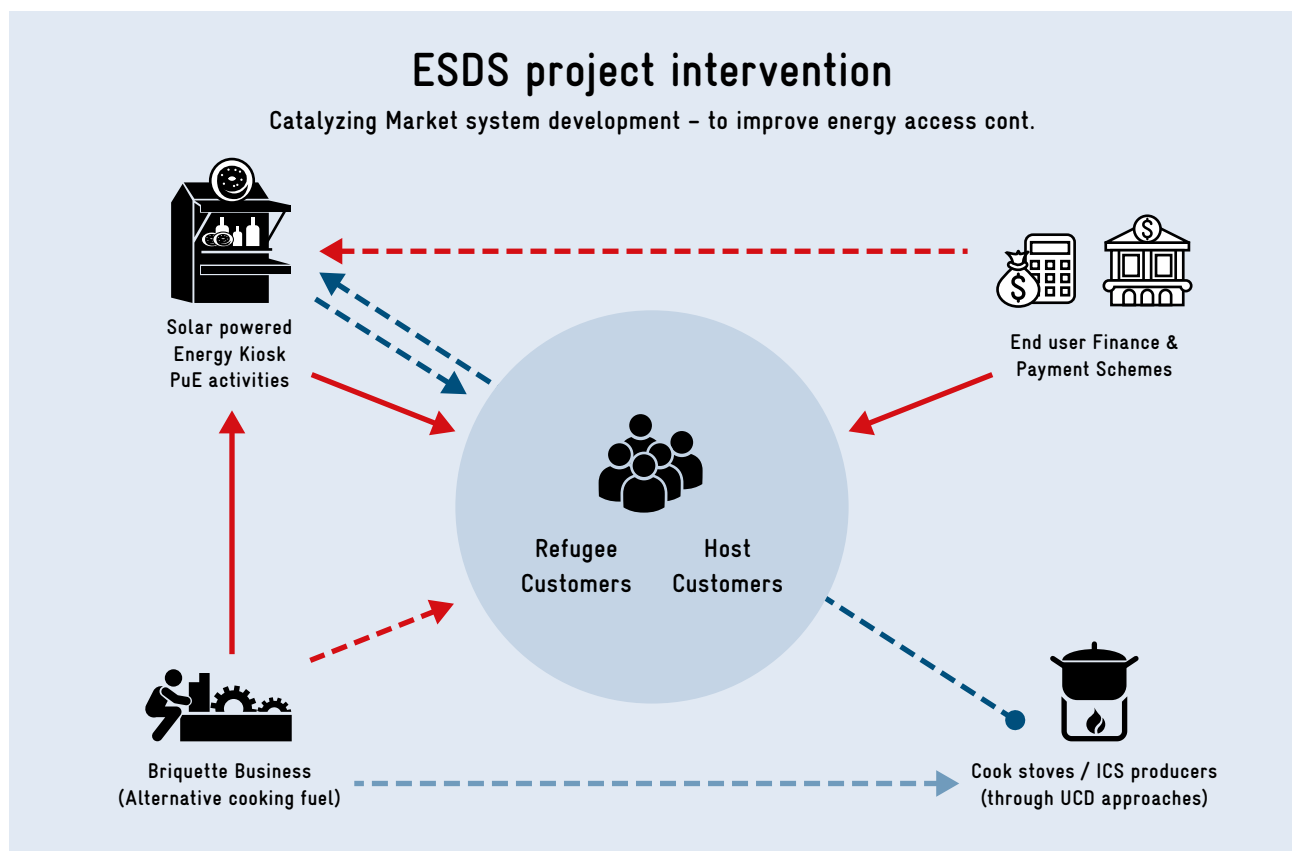
GIZ and UNHCR are in the process of designing, financing, and setting up an “energy kiosk” in the Nguenyiel camp, under the following scheme:

This model aims at centralising energy services through a single retail point for both stoves and fuels, potentially to be supported by other satellite retail points of sale in other areas of the camp, to increase geographical coverage. While most focus is on the retail of energy solutions, and especially those linked to cooking, other services linked to productive use of energy and non-energy related services will also be offered. The kiosk will likely be operated on a commercial basis by local entrepreneurs, with support from the GIZ and UNHCR.

Creation of a EUF mechanism

As discussed in the previous chapters, EUF in the target areas should: i) address local value chains; ii) focus on cooking solutions, iii) put the ESP as the main source of EUF, given the lack of FSP in the areas and with the goal to reduce complexity and transactional costs. We have identified that

Figure 13: The “energy kiosk” model – Ethiopia – GIZ



working with the briquetting and energy kiosk initiative is the most appropriate entry point to this end, providing both technical and financial support is offered by GIZ and UNHCR to the local entrepreneurs.

5.2.1 Implementation Plan for the Pilot

Objective

The overarching objective of this pilot proposal is to propose an effective EUF mechanism benefiting equally the host and refugee communities of the Nguenyiel camp to boost the uptake of newly designed cookstoves and charcoal briquettes produced locally and supported by GIZ and UNHCR.

More specifically, EUF aims at increasing the affordability and attractiveness of such technologies compared to the current use of firewood, which is free or almost-free but requires time and energy to fetch, and it comes with risks associated with violence, especially for women.

Given the lack of sufficient preconditions to engage with local FSP, especially among refugees where we could find evidence of any appropriate institution, it is proposed instead that the EUF is provided by the ESP itself.

Desired impact

EUF supports the uptake of improved cookstoves and charcoal briquettes for at least 12 months among households in the refugee and host communities. EUF also supports the nascent local artisanal industry of Cooking Energy System (CES) manufacturing and charcoal briquette production.

In parallel, the use of inefficient cookstoves and the use of firewood is reduced to the benefit of women and children fetching the wood, reduced exposure to emissions, and negative impacts on the local environment.

Approach

We propose that the ESP, being identified as the managing structure of the energy kiosk, buys the improved cookstoves and the charcoal briquettes directly from the producers, either in full, through payments in instalments, or on consignment/account sales.

He or she then enters into an agreement with prospective users whereby the stove is “leased” for a predetermined period of time, under the engagement from the users to buy a pre-agreed amount of charcoal briquettes at a specific price which includes the payment of the stove over the time of the “leasing” period.

On leasing in Ethiopia

Leasing being highly regulated in Ethiopia and subjected to licensing, a common practice of operators is to disguise leasing under re-definition of “payment in instalments” instead. This is common and somehow accepted practice, and such wording should be used instead if engaging with government institutions.

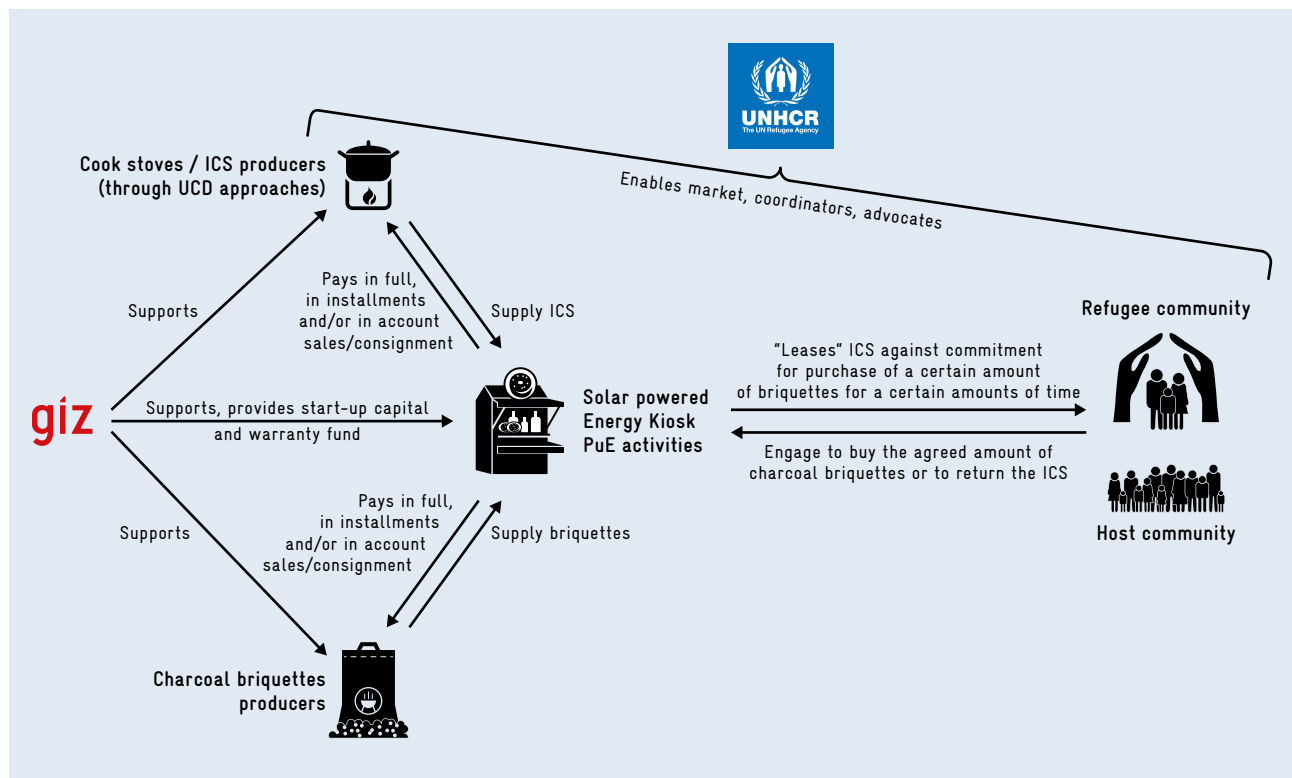
After such period, if the terms are fulfilled by both parties, the user of the stove becomes the full owner and he or she is no longer bound by a minimum purchase scheme. Further, after the agreement period, the price of charcoal briquettes will no longer include the repayment of the stove, making it cheaper for the user to continue using the new technology. On the other hand, if the terms are not met in terms of minimum purchase of briquettes, the managing structure of the energy kiosk can claim the restitution of the stove. Based on the size of the prospective market and the update of the proposed solution in the camp, the number of retail kiosks could be increased.

This model allows to simultaneously sustain the supply of the stoves and the fuel for a predetermined period of time until the prospective user becomes familiar with the new technology. After such period, the fact that the charcoal briquettes become cheaper should be considered an incentive to continued use.

Funding schemes

The funding schemes for this model to work need to ensure that sufficient and timely margin is made by the managing structure of the kiosk from the briquette purchase agreements with households to be able to finance its suppliers. The underlying concept, typical of any commercial transaction, is to anticipate as much as possible payments from clients. In this case, the households, while postponing and/or diluting those for the suppliers, represented by the producers of CES and charcoal briquettes.

Figure 14: Approach of the pilot proposal - EUF mechanism benefitting host and refugee communities of the Nguenyiel camp to boost the uptake of newly designed cookstoves and charcoal briquettes produced locally and supported by GIZ and UNHCR



Although it is not possible, at this stage, to quantify the financial needs given neither the prices of the cookstoves nor of the charcoal briquettes have been calculated, there are a few key considerations to be made:

- **Paying the stoves to the manufacturers only once they are sold from the kiosk(s) to the final users.** Especially if the producers belong to the same community of the users, there might be the chance that the producers would actively market and sponsor the products, given their strong interest. Diluting payments would also be ideal from the perspective of the managers of the energy kiosk, but it is also important to take into account the financial needs of the manufactures in terms of reinvestment needs. A negotiation should take place with the support of the GIZ and UNHCR.
- **Energy kiosk managers pay back the upfront investment for the stove in the shortest period possible,** in order to be able to finance further purchases. While it is still not possible at this point to quantify this period, which will be dependent on the final price of the stoves and the mark-up that can be realistically added to the price of charcoal briquettes for the time of the agreement, it is proposed to design the model to repay the stove between three and 12 months.
- **Start-up capital should be provided to kiosk managers to enable sustained operation in the initial months while waiting for the stoves to be fully paid back** and the profits used to make further purchases. This start-up working capital should be provided by GIZ and/or UNHCR.
- **A partial guarantee fund, especially during the first months of operations, should be provided to the kiosk managers in case the prospective users do not fulfil the repayment agreement and the stoves cannot be retrieved.** While this should not be common/widespread and some of these risks could be mitigated through reputational-based systems, some defaults might occur, especially at the beginning. In that case, the guarantee fund would help ensure that operations do not stop while addressing the problem, and that enough cash is at the disposal of the kiosk to sustain operations.

Learnings from the design, operation, and repayment rates should be captured regularly and used to refine the kiosk design and operation. Further, GIZ has funded energy kiosks in other countries, such as Uganda, so compiling these learnings across similar programmes to inform future kiosk programmes will be valuable.

Stakeholders

The following stakeholders can be identified:

- **The manufacturers of ICS** manufacture the ICS and sell them to the managing structure of the energy kiosk, under an agreed payment method.
- **The producers of charcoal briquettes** produce the charcoal briquettes and sell them to the managing structure of the energy kiosk, under an agreed payment method.
- **The managing structure of the energy kiosk** provides EUF to final users through a leasing model linking payment of the ICS to an agreed amount of charcoal briquettes sold at a price that includes the repayment of the ICS for a predetermined period of time.
- **The final users** enter into agreement with the managing structure of the energy kiosk for the purchase of an agreed amount of charcoal briquettes bought at a price that includes the repayment of the ICS for a predetermined period of time.
- **GIZ and UNHCR** provide technical assistance across the value chain, as well as start-up capital and a partial guarantee fund for the management of the energy kiosks for the first several months of operations.
- **Community facilitators** facilitate relationships between the energy kiosk and the final users, especially in case of breaching of contract terms by either party. For the camp, this could be the Refugee Central Committee (RCC), and for the host communities, the local council.

On subsidizing ICSs

The proposed model is based on a semi-commercial structure. If GIZ and/or UNHCR aim at accelerating the uptake of the technology through direct financial support, especially in the first phases of the project, they could envisage to subsidize, entirely or partially, the ICS, hence lowering the needs of remuneration for the energy kiosk. In this scenario, however, it is recommended to limit the batch and duration of the ICSs being supported, for instance by offering under a promotional model for early adopters.

Pre-conditions to be met

For this model to work, the following preconditions need to be met:

- **Supply of cooking energy systems (CESs) and charcoal briquettes is guaranteed and of sufficient quality:** EUF only addresses the issue of affordability, while stimulating supply only indirectly. If the supply of CESs and charcoal briquettes is not guaranteed, or not of sufficient quality, it would have negative consequences in terms of viability. In particular, if an agreement is signed between the energy kiosk and the users, and insufficient charcoal briquettes are made available, it would force the energy kiosk to breach the contract terms, with negative consequences for the whole value chain.
- **Technical and financial assistance is provided:** As mentioned, start-up working capital, a partial guarantee fund and technical assistance need to be provided by GIZ and UNHCR alike for the model to start operations sustainably. Time-bound subsidies on the CES can also be introduced.
- **Products are accepted and prices are viable:** This precondition relates the two ongoing activities regarding user-centred design CESs and charcoal briquettes that can compete with free or quasi-free wood biomass. It is crucial that the two products are accepted and prices are viable, or the scheme will not be successful.

- **Social trust:** Given the limited capacity the managing structure of the energy kiosk has regarding enforcement of payments; a social pact must exist between the kiosk and users regarding future payments and resolution of contract breach. The role of community facilitators is therefore crucial.

Funds

Being a semi-commercial model, the financial engagement is limited to start-up capital, a partial guarantee fund, and technical assistance. It must be noted that while the magnitude of this support will depend on the scale of the supply and the demand for the target areas, the need for partial guarantee funds and technical assistance, including awareness-raising, are likely to be inversely proportional.

Time-limited subsidies on CESs could also be offered and promoted under a marketing scheme for early adopters (in form of lowering the unitary price of charcoal briquettes, and/or shorter contract periods).

Duration

It is expected that financial support should not go beyond 12 months from the moment when the supply of both CESs and charcoal briquette is ready and scalable. Technical assistance could be extended for a further 12 months.

6. RECOMMENDATIONS FOR STAKEHOLDERS

6.0 Common Recommendations Across ESDS Countries

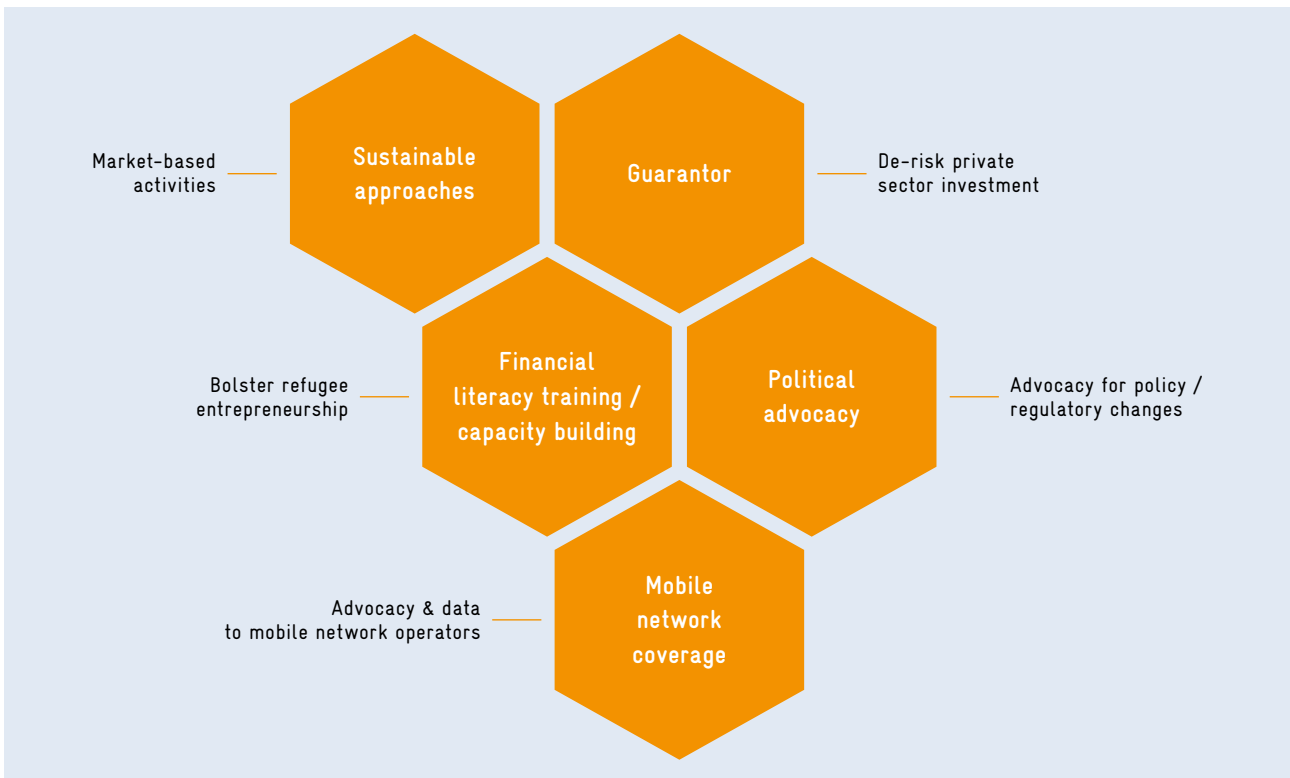
First, the set of recommendations for GIZ and UNHCR that are shared among Ethiopia, Kenya and Uganda are discussed, followed by recommendations for other stakeholder types. Second, country-specific recommendations are presented.

6.0.0 GIZ and UNHCR Recommendations

Sustainable approaches: GIZ advocacy around sustainable approaches (market-based energy programmes and not giveaways/procure-and-distrib-

ute) to UNHCR, NGOs, and other humanitarian agencies is critical. GIZ can lead by example and ensure no funding for energy product/service giveaways in DS is budgeted and implemented. GIZ can also engage other bilateral donors via a working group to map such programmes and jointly agree to action plans to move away from such approaches to sustainable, non-procure-and-distribute energy programmes. The Working Group could consider how to best engage the relevant NGOs to ensure sector shifts occur. UNHCR can also strengthen coordination among these actors as programmes are designed/proposed to avoid duplication and foster sustainable approaches from the idea/conception stage. This bolsters EUF by strengthening the demand for these products and building markets. It also aligns with bridging humanitarian and development approaches and enabling refugees' self-reliance.

Figure 15: GIZ and UNHCR Recommendations



Guarantor: GIZ or other donors, such as Sida, serve as a guarantor to the private sector to help de-risk market entry and sales in rural/remote areas or DS. This can include expanding existing guarantee instruments or creating new instruments specific for companies interested in expanding to DS.

Financial literacy training/capacity building: GIZ and others can offer expanded financial literacy training/capacity building, including mobile literacy to enable mobile money/payment access, and offer tailored training for entrepreneurs on business skills linked to financial literacy. GIZ can create a task force across the ESDS countries to design a menu such interventions which the country teams can then select from and implement with consistency across the countries. For needs specific to a country or DS, interventions can be designed to meet these needs and implement locally, ensuring all displaced persons are reached. These training/capacity building interventions should have a language lens as this is an important factor for effectively serving refugees.

Political advocacy: GIZ and UNHCR can advocate to governments (national and local as appropriate) for regulatory frameworks that are conducive to private sector-led development-focused initiatives in refugee camps, which enable improved socio-economic conditions of both refugee and host communities. For example, in Kenya,

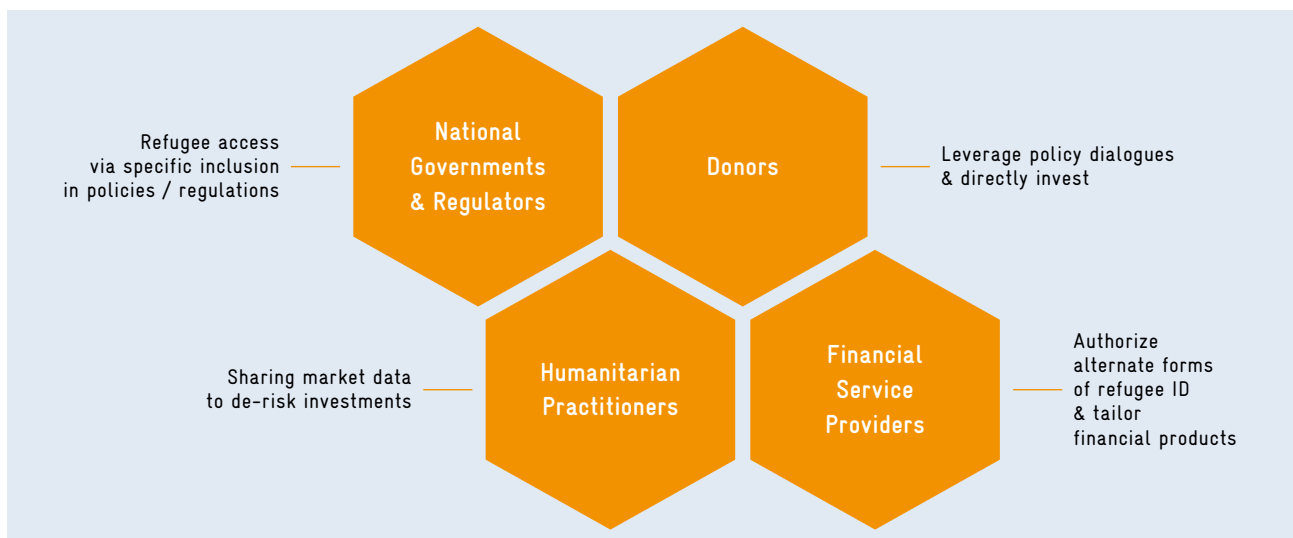
GIZ can advocate to the Government for refugees having full access to M-Pesa.

Mobile network coverage: Across all three ESDS countries, the importance of the mobile network to enabling EUF is foundational. Advocacy by GIZ, including in partnership with other organisations listed below, to the mobile network operators, supported by refugee mobile phone penetration data from UNHCR and other humanitarian partners, can strengthen the business case needed to convince mobile network operators to boost their network coverage in camps is needed. GIZ could consider how to collaborate with entities such as GSMA, NetHope, and the Smart Communities Coalition to jointly advocate mobile network operators, including joining together for research pieces, funding projects to demonstrate the business case (such as through the GSMA Mobile for Humanitarian Innovation fund), or other advocacy efforts.

6.0.1 Other Stakeholder Recommendations:

National governments and regulators: Ensuring refugees can access mainstream financial services through specific inclusion in relevant policies (such as stating refugees are a target group in

Figure 16: Recommendations for other stakeholders



National Financial Inclusion policies), regulations, and IFI loans will enable expanded EUF opportunities. High-level dialogues can be pursued between bilateral donors, influential FSPs, and the government to advance these policies.

Donors and IFIs/DFIs: Leveraging their role during policy dialogues with host countries, donors can advocate for full economic and financial inclusion of refugees in all relevant fora. For example, World Bank pipeline projects can consider these areas in the design of new country projects. Donors can also directly invest in activities to increase capacity among refugees on available financial services and financial literacy, and can cooperate with GIZ per the above recommendation.

Humanitarian practitioners: Making available market data and research on refugees' financial needs, energy product/service preferences, and ability and willingness to pay can help to de-risk FSP investments. Sharing of this data and evidence will also advance shared understanding of the actual risks and benefits (versus perceived) of offering increased financial services to refugees. The organisations engaging in these activities vary across ESDS countries as well as across the camps/settlements. Raising this need to share data and implementing this recommendation can occur in formal humanitarian Working Groups as well as other fora, such as the SCC.

FSPs: An important step to enable increased refugee EUF is to authorise the use of alternative forms of refugee identification documents for accessing financial services. For example, banks and MFIs can broaden their acceptable identification list to include refugee IDs and home country official national identification documents. FSPs can also proactively collaborate with humanitarian practitioners to understand the needs of refugees and tailor financial products to meet those specific needs.

6.1 Country Recommendations for Kenya

During this study, multiple key stakeholders echoed the need for multilateral partnerships that offer an opportunity for information and network sharing across organisations. This in turn would facilitate leveraging the diverse technical, social, and financial expertise. For instance, financial institutions and energy service providers could partner to provide EUF for energy products in the host community and camps of Kakuma and Kalobeyei. The presence of financial institutions in these settlements, as seen in the above pre-conditions analysis, is currently low also due to the perceived risk of the market. However, several ESPs are present in the camps and although many pilots have demonstrated certain degrees of success, the lack of financial platforms hampers these initiatives to reach scale.

6.1.0 UNHCR

Provide energy market access support. ESPs and FIs noted that there is a gap of knowledge on the needs of refugees and the market opportunities available in camps. This has deterred them from engaging in the potential camp markets and limiting themselves to serve the host communities. However, the companies that do business also in the camps shared that their refugee customers have high repayment rates with some even obtaining secondary or additional business loans once the initial loans are paid off. UNHCR can play a vital role in creating awareness of the opportunities and sharing information on opportunities and risks of business in the camps. Partnership with donors and IFIs (like IFC) to collect and disseminate this information is key.

Support for sustainable electrification of camps. Rural and remote areas of Kenya are not served by the national grid and thus SHSs and mini-/micro-grids become the most viable option to provide access to energy for households, community facilities, and businesses. This is also the case in Kakuma and Kalobeyi with KPLC only serving (where available) the host community. The GIZ and Renewvia mini-grid are a prime example of the few privately owned/operated mini-grids that serve the Kakuma camp and Kalobeyi settlement. It is of paramount importance that cost-reflective tariffs are effectively applied and implemented to ensure commercial operation and maintenance of the systems, which otherwise could be dismissed after a short time.

Provide clarity on the closure of Kakuma and Dadaab camps. Recently the government of Kenya issued a statement of intent for the closure of the Kakuma and Dadaab camps, and an ultimatum for UNHCR to develop a closure plan for June 30th, 2022. This was met with great concern by humanitarian organisations who are urging the Kenyan Government to reconsider and find alternative solutions that are in line with the principles and goals of the Global Compact on Refugees (GCR). This uncertainty has deterred potential investors and private sector actors from entering the market as the flight risk of refugees is high. One of the financial institutions consulted during this assignment noted that several refugees have moved away from the camp and inevitably defaulted on their small loans. Clarity on the roadmap to closure will support all stakeholders to prepare for the way ahead and enable possible investors to make the required operational changes to their business model, possibly avoiding the consequences of this financial risk.

6.1.1 Other Stakeholders

Ministry of Interior: The Ministry can expedite the process to obtain valid IDs for refugees to access bank accounts, PAYGO technologies and mobile money platforms for extended periods of time. The current delays and short validity of Alien IDs hinder refugees from access to financial services and limit the use of digital money services.

KOSAP Facility and KCB Bank of Kenya: KOSAP and KCB already have proven models to work in remote parts of Kenya and intentionally with women. Opening their offer, skills, and existing platforms to refugee camps would drastically reduce set-up lead time and costs, while leveraging best practices and lessons learnt.

6.1.2 Roadmap for Engagement

Table 14: Roadmap for engagement (Kenya)

WHEN	WHAT	WHO
Month 1-3	Entering negotiations with KOSAP and KCB. Mapping of existing VSLAs.	UNHCR/ESDS KOSAP/KCB
Month 3-6	Lobbying Ministry of Interior over IDs. Setting up refugee guarantee funds within KOSAP and KCB Market assessment, offer segmentation in collaboration with KOSAP providers. Connections with existing mobile money platforms. VSLAs tailored capacity programme with KCB and KOSAP products providers.	UNHCR/ESDS MoI KOSAP/KCB
Month 6-12	Roll-out of IDs plan. Product demonstrations and market activation campaigns. Roll-out of loans services and saving products. Monitoring.	UNHCR/ESDS MoI KOSAP/KCB
Month 8-12	Restitutions of lessons learnt.	UNHCR/ESDS

6.2 Country Recommendations for Uganda

6.2.0 UNHCR, the Office of the Prime Minister (OPM), and GIZ/ESDS

Coordination: Many humanitarian practitioners interviewed noted their appreciation for UNHCR's coordination of the Cash Working Group. It is recommended that the Livelihood and Energy working groups merge and UNHCR actively coordinates the merged Working Group. This new Working Group should benefit from the best practice elements identified above, notably a locally and market-led approach. A discussion with the Cash-Based Intervention (CBI) working group coordinators will help to identify the best ways to make a large (100 people) community efficiently work and deliver for the benefits of the refugees and host communities. For example, they use sub-groups to effectively deliver on specific subjects (financial literacy training roll-out, prototyping the cash for work approach etc.), have effective and in time reporting with accountability mechanism for the implementing partners.

Sustainable Energy Response Plan: UNHCR and the OPM will benefit from actively implementing the livelihood aspects of the Sustainable Energy Response Plan (SERP) in line with the Ministry of Energy and Mineral Development (MEMD), adopting a market-based approach, integrating the lessons learned of the past initiatives identified in this report, and integrating the local communities and the private sector and dynamic management of the innovation. This will shift the approach from care and maintenance to self-reliance and inclusion, and thus reduce the pressure on fund requirements.

GIZ/ESDS

The programme will benefit in the long term from planning and managing their interventions in line with the Ugandan coordination bodies and make the efforts to improve their functioning.

The programme will benefit in the short term from apprehending the critical situation faced by refugees and their host communities, and from accepting a "crisis"/fast-tracked approach to rapidly intervene and avoid the refugees falling into deep poverty and dependence.

The programme will benefit in general from adopting the good practices of involving the local communities in the design and management of their interventions.

6.2.1 Other Stakeholders

Stakeholders involved in the Energy and Livelihood sectors will greatly benefit from improving their capacities and integrating the interventions' best practices, notably: constantly involving the local communities in their intervention design and management, adopting market-based approaches (in link with the value chains), adopting a systems practice, and dynamically managing innovation through results orientation.

6.2.2 Roadmap for Engagement

Table 15: Roadmap for engagement (Uganda)

When	What	Who
Months 1 & 2	Integrate the local communities' perspectives (perceived challenges, proposed solutions and priorities) into its strategic planning.	ESDS Uganda
Months 2 & 3	Integrate the report findings into the Sustainable Energy Response Plan (SERP) integrating the local communities and the private sector and a dynamic management of the innovation.	ESDS Uganda
Months 3 & 4	Merge the Livelihood and Energy sectors and develop active coordination of the merged Working Group with the best practice elements identified above and notably a locally and market-led approach, with dynamic management of the innovation.	UNHCR and OPM
Months 4 to 9	Develop stakeholders' capacities.	UNHCR and OPM

6.3 Country Recommendations for Ethiopia

The following recommendations relate to the role of different players with regard to the deployment of end-user finance solutions for energy access in refugee settings. However, as mentioned previously in the report, it is noted that the off-grid energy market in Ethiopia is affected by other challenges that go beyond the sole "affordability" issue that EUF aims to target. Lack of forex for imports of components, low capitalisation and high fragmentation of domestic suppliers, are among the top criticalities affecting the sector, which EUF alone cannot target. It is therefore highly recommended

not to overlook supply-side financing if some of these issues are also to be targeted, potentially jointly with EUF interventions; this is particularly relevant for the displacement settings of Gambella, where logistical challenges related to the remoteness of the area should be also be addressed.

GIZ, through the ESDS programme, is playing a crucial role in displacement settings by bringing structured private markets and infrastructure investments in humanitarian settings. This is not an easy feat, especially in a country with a thin and partially distorted private sector, such as Ethiopia.

For this to happen, GIZ needs to ensure that:

- **All humanitarian players in the target camps buy into the initiative**, starting from UNHCR, ARRA, and their implementing partners. While this might not necessarily mean that these players actively support the initiative, it would be sufficient that they do not act against it. This could be avoided, for instance, by promoting and holding regular meetings with all actors.
- **Support to the fragile private sector is provided by all means.** This is especially true for the retail of products, which is a sector precluded to international investors, hence relying on a small number of small, under-capitalised, risk-averse national distributors operating in a vast market. Especially for Ethiopia, EUF is necessary but far from being sufficient to attract the private sector, particularly in risk areas like the Gambella one. In the case of imported products, logistical and forex issues cannot be addressed by EUF alone.

6.3.0 Other Stakeholders

Bringing development-oriented actions in humanitarian settings is not easy, also in terms of mindset. For this to happen, the following players should be involved:

- **ARRA:** The Administration for Refugee and Returnee Affairs (ARRA) is the government counterpart of UNHCR in the camps. While it is usually found to be a collaborative stakeholder,¹⁰² it is the main entry point to policy advocacy at government level, and it is important that ARRA not only allows these interventions, but also that it actively supports them, especially on the regulatory side. Hence, awareness creation by ARRA among prospective beneficiaries through a bottom-up approach is warmly recommended.
- **Implementing partners of UNHCR:** This includes all NGOs and other institutions, national and international, operating in the energy and financial space of the target camps. Here again, while not crucial that they actively support the GIZ ESDS initiative, it is important that they do not operate against it. It is therefore proposed to inform the regularly, exchange on a mutual initiative to avoid conflicts, and potentially seek synergies.
- **Local artisans:** This is probably the most crucial and delicate level of intervention. As stated in the pilot proposal, EUF cannot sustain itself if supply is disrupted and/or sub-standard. For this reason, if the model is to work, both the producers of charcoal briquettes and the manufacturers of ICSSs need to ensure a constant supply of products and discuss flexible payment terms with the managers of the energy kiosks. To this end, GIZ support is crucial.

102 The main reason being that its operational budget comes from UNHCR itself

- **Final users and community:** The target communities tend to complain about the poor existing cooking energy situation. Yet, making the step from a free of quasi-free source of energy to a paying one, however qualitative better, should be undertaken and supported. This is especially crucial in refugee camps, where a culture of free handouts is well established, and market dynamics struggle to insinuate themselves. Not only, also compliance with contract terms should be assured, if the model is to work.
- **Local authorities and RCC:** Local authorities in the host communities and refugee central committees (RCC) in the refugee camps should play a double role, with the support of GIZ, UNHCR and ARRA: i)

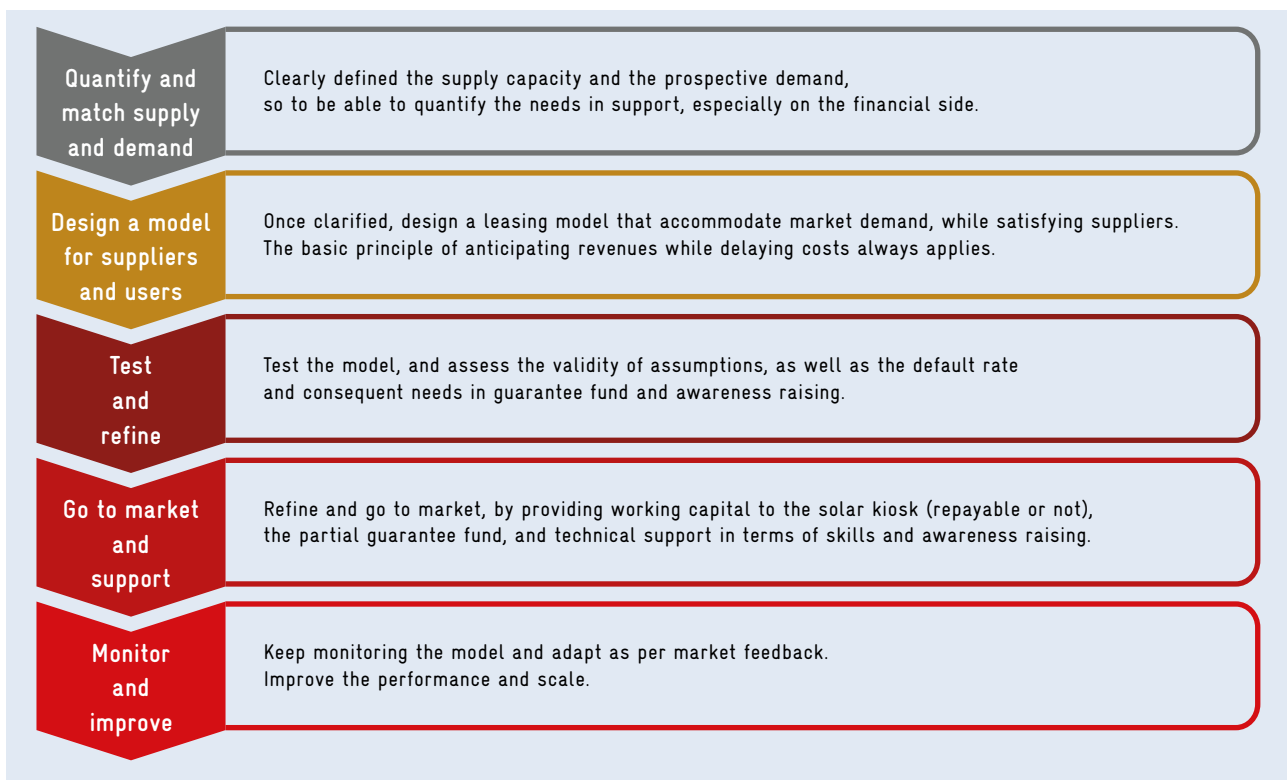
advertise and promote the model among the communities, and ii) act as guarantors and mediators of the contract terms between the managers of the energy kiosk and the final beneficiaries.

6.3.1 Roadmap for Engagement

Defining a detailed roadmap at this stage of the proposal is quite challenging, as it heavily depends on the capacity of GIZ and UNHCR to start up the production of charcoal briquettes and CESs, as well as the set-up of the energy kiosk.

When it comes to priorities, however, the following apply:

Figure 17: Roadmap for Ethiopia



7. RECOMMENDATIONS FOR POLICY ADVOCACY

Policy and regulations often create the framework or “rules of engagement” around energy access and can significantly influence the successful uptake of EUF. In each ESDS country, there are Energy and Environment Working Groups led by UNHCR and the Government that enable humanitarian stakeholders to coordinate efforts and share programmes in design and implementation.¹⁰³ Focusing on the policy advocacy recommendations identified in this report, these Working Groups can play an important role in bringing stakeholders together

to jointly engage in discussion and advocacy efforts. The participants in these Working Groups also can leverage the personal working relationships formed via these meetings to have open discussions about the policy challenges and advocacy needs. This section first provides the policy/regulatory considerations that enable EUF and their presence in the ESDS countries today and then discusses opportunities for GIZ and UNHCR policy advocacy in the ESDS countries to overcome challenges related to these considerations.

Table 16: Policy/Regulatory Considerations to Enable EUF & Presence in ESDS countries

POLICY CONSIDERATIONS	KENYA	UGANDA	ETHIOPIA
Identification (national, refugee/alien)	National + refugee/alien ID	Nationals + refugee ID with OPM check	National IDs. ARRA issuing those for refugees
Access to digital financial services, inc. mobile money and airtime	Open access for nationals and alien ID holders for foreign nationals and refugees with a refugee visa	Open access for nationals + refugees	Nascent access (2020 law change opened up mobile money)
Access to an active SIM card	Open access for nationals and alien ID holders for foreign nationals. Refugee	Open access for nationals + refugees	Open access for nationals + refugees
Know Your Customer*	Compliance required	Compliance required	Compliance required
Employment	Open access for nationals and refugees with a valid refugee visa	Open access for nationals + refugees	Open access for nationals only + refugees under “incentive work” scheme

* Know Your Customer (KYC) is the process where a business verifies the identity of its clients and assesses the potential risks of illegal intentions (money laundering) for the business relationship. The KYC process includes ID card verification, face verification, document verification such as utility bills as proof of address, and biometric verification. For banks, it can show up formally in considerations and for SACCOs/VSLAs, it is usually more of a social check.

103 Kenya, Kakuma Working Group – <https://data2.unhcr.org/en/working-group/114>; Uganda Working Group – <https://data2.unhcr.org/en/working-group/153?sv=0&geo=220>; Ethiopia Working Group – <https://data2.unhcr.org/en/working-group/146?sv=0&geo=160>.

7.0 Country Policy Advocacy Recommendations for Kenya

Closure of Kakuma and Dadaab: The Kenyan Government recent proclamation for UNHCR to develop a plan to close Kakuma and Dadaab camps by June 30, 2022 has had a chilling effect on private sector investment. The uncertainty around this date and the ability for investors to recoup their investment is adding additional risk to serving these markets with energy products/services and related EUF. UNHCR can advocate for clarity on the plan for closure from the Government to provide clarity to investors and all stakeholders.

Documentation: Refugee/alien proof of registration is issued for three months at a time which creates challenges in effectively sustaining access to digital financial services (maintaining the same phone number). This is as they await their issuance of an alien ID that take on average of two years. GIZ and UNHCR can advocate for the Government to improve the registration process and make it efficient to be issued refugee/alien ID numbers. This will enable refugees' access to the same phone number and mobile money/wallet account, which in turn enables digital EUF, such as through PAYGO.

Access to digital financial services and Access to an active SIM: IRC found that a refugee ID is not sufficient to access M-Pesa in its full functionality, but refugees can access a form of M-Pesa with limited functionalities.¹⁰⁴ Refugees living in camps are allowed to register and use limited-purpose mobile money accounts that are disabled outside the camp. Refugees may have full access through the use of a Kenyan's national ID or by registering before refugees were prohibited. Advocacy from GIZ and UNHCR to ensure refugees have full access to M-Pesa is a critical need given the strong adoption of PAYGO ESPs.

Access to Financial services such as loans:

Urban refugees in Kenya are able to access loans from financial institutions through social guarantee, while in refugee camps such loans are rarely issued, and in the event that they are it is at the discretion of the Financial Institution. Banks such as Equity have started providing refugees with bank accounts and loans through social guarantee or risk-sharing programmes in cooperation with donors and humanitarian organisations. For this, it is important that UNHCR and GIZ advocate the Kenyan government to provide pathways for refugees to gain access to financial services using the proof of register number.

Mini-grid tariffs: Mini-grids can deliver electricity to enable livelihoods and local economic growth in the refugee camps. For example, the private sector mini-grid that serves Kakuma camp and Kalobeyi settlement is enabling productive uses of energy among refugees. To enable this mini-grid to operate sustainably and incentivise other mini-grid operators, cost-reflective tariffs are needed. In practice, a hybrid tariff scheme could be pursued which supports a cost-reflective tariff with a targeted subsidy. For example, a connection subsidy or a voucher/demand-side subsidy combined with a cost-reflective tariff reduces the total cost for the consumer. UNHCR can advocate the Energy and Regulatory Petroleum Authority (EPRA) that this is sufficiently addressed in the Energy Regulations 2021 currently being socialised. GIZ can advocate for learnings from their Kalobeyi mini-grid, including tariff setting.

104 COVID-19 and refugees' economic opportunities, financial services and digital inclusion. IRC. November 2020

7.1 Country Policy Advocacy Recommendations for Uganda

Know Your Customer, Access to digital financial services and Access to an active SIM: UNHCR and GSMA previously engaged in a joint advocacy effort to improve refugee access to mobile services. This resulted in policy changes, including a new directive to the mobile industry that led to over 600,000 refugees who did not have government-issued refugee ID but had attestation letters issued by OPM being able to legally access mobile-enabled services in their own names.¹⁰⁵ While this is valuable, the Bank of Uganda (BoU) has avoided issuing specific regulations or guidance related to refugees as customers of financial services. On occasion, BoU has issued letters in favour of the financial inclusion of refugees. As a result, the refugee KYC is at the discretion of the FSPs and misinformation and confusion about the policy continues to hinder access and non-uniform application. FSD Africa found in interviews with refugees – particularly businesses operators – that some had tried to access formal FIs but had their requests rejected because of stringent government policy not to accept refugee IDs or other non-approved forms of identification for the KYC process.¹⁰⁶ GIZ and UNHCR advocacy to the BoU to eliminate this uncertainty would be valuable.

GIZ and UNHCR would also add value by clarifying the best way for refugee business owners and organisations to register as mobile money, banking and solar solutions agents. Potentially they could advocate to influence the required regulatory adaptations and/or implementations.

105 Proportionate regulation in Uganda: A gateway for refugees accessing mobile services in their own name. GSMA. February 2020.

106 FSD Uganda (2020) – New lives, new tools: the financial lives of refugee communities – <https://fsduganda.or.ug/new-lives-new-tools-the-financial-lives-of-refugee-communities/>

7.2 Country Policy Advocacy Recommendations for Ethiopia

Identification: A 2019 policy allows refugees to open bank accounts with ARRA-issued ID cards. However, in practice, the policy is being implemented inconsistently across the camps, and banks often require third-party guarantors to vouch for the applicants. For example, in 2020, only Equity Bank has started to open bank accounts for refugees,¹⁰⁷ other financial institutions are working informally with refugees, and camps in Somali regions are seeing more experimental engagements with refugees. UNHCR advocacy to the Ethiopian Government and financial institutions around the full and consistent implementation of the 2019 policy will be important to unlocking formal EUF for refugees. Similar considerations apply for SIM cards, whereby their issuance on the basis of the IDs issued by ARRA is discretionary.

Employment: In 2019, the Ethiopian government issued a proclamation expanding refugees' rights to work as part of the CRRF pilot country approach. A 2021 case study finds that over 2,000 refugees were issued work permits and the government has plans to distribute thousands more, but progress appears slow with many more refugees awaiting work permits.¹⁰⁸ Research from other contexts shows the economic benefits of greater inclusion of refugees in the formal labour market, and it is likely that the benefits for host community members would outweigh any negative effects.¹⁰⁹ Currently, there are limited opportunities for refugees to earn income in the camps as 'incentive workers'. The National Consultant found that under this scheme, refugees are

107 COVID-19 and refugees' economic opportunities, financial services and digital inclusion. IRC. November 2020

108 "From Displacement to Development: How Ethiopia Can Create Shared Growth by Facilitating Economic Inclusion for Refugees" June 2021. Centre for Global Development (CGD) and Refugees International.

109 "The Economic and Fiscal Effects of Granting Refugees Formal Labor Market Access." October 2018. CGD Working Paper 496.

employed informally by ARRA or its implementing partners usually as teachers, health workers or social workers but monthly wages are capped at around ETB 700–800 (less than USD18). This scheme is unsustainable and limits the econom-

ic benefits refugees can offer to Ethiopia and their families. It is recommended that GIZ and UNHCR advocate to ARRA for the issuance of the same work permits to refugees as are issued to other foreigners.

8. CONCLUSIONS

This study provided an overview of how end-user financing (EUF) works, its advantages and disadvantages compared to supply-side financing (SSF). Further, it analyses EUF use in the development sector, and specifically in the energy markets, where low marginality on energy products and services, as well as poor geographical outreach make EUF a challenging, yet promising, tool to increase affordability.

EUF was found to be extremely valuable to increase market choice, rather than limiting it, as it is often the case with SSF, and it is suitable for smaller interventions targeting specific groups, such as women; on the other hand, EUF only works on existing markets, and it is little useful to create new markets challenged by a variety of constraints, mostly on the supply chain.

Kenya was found to be the country in which EUF is most developed, mostly due to the high level of maturity of the mobile money sector, which facilitates the uptake of digital offers, while reducing the high transactional costs typical of EUF. EUF could then be a promising tool to further support the off-grid energy market in the country, with a specific focus on increasing the quality and choice of the offer.

Uganda also showed a very promising market, mostly boosted by a very low national electricity rate, at 29%. While players are growing in

number and size, EUF could have the potential to support its strengthening and orienting it towards specific target users where affordability is a major barrier. However, it would be appropriate to also look at supply-side financing in areas where markets are fragile and might need additional competition and entry of strong players.

Ethiopia appears to be the least mature market of the three, with most challenges being on the supply side, driven by undercapitalisation and small expansion capacity of market players, challenges related to forex access and logistics. For this country, in which the use of digital mobile solutions is at its infancy, EUF could support market systems, but with a much less impact than Kenya and Uganda, at least until market distortions are addressed in the first place. It is therefore recommended, for Ethiopia, that supply-side financing is provided alongside EUF to address challenges related to forex for imports, and logistical challenges that might hinder the market entry in Gambella.

Table 17 below provides a comparison of the national preconditions per country concerning different EUF mechanisms and actors. Red involves a higher number of preconditions for that specific entity or model to be implemented, and green is the lowest; yellow stays in between. In the total columns, the highest the score, the more challenging the provision of EUF through that specific entity, or model.

Table 17: Comparison of national preconditions

		PHYSICAL			FINANCIAL			REGULATORY			TOTAL		
		Kenya	Uganda	Ethiopia	Kenya	Uganda	Ethiopia	Kenya	Uganda	Ethiopia	Kenya	Uganda	Ethiopia
Finance Service Provider (FSP)	Commercial bank	Red	Yellow	Yellow	Red	Red	Red	Red	Red	Red	41	35	37
	Micro-Finance Institution (MFI)	Red	Yellow	Yellow	Red	Red	Red	Red	Red	Red	36	35	38
	Savings and Credit Cooperative Organisation (SACCO)	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	33	23	33
	Village Savings and Loan Association (VSLA)	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	25	23	26
Energy Service Provider (ESP)	Rental	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	28	30	32
	Credit	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	30	30	32
	Leasing / Pay-as-you-Go (PAYGO)	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	30	36	35

When looking at the specific case of displacement settings targeted by GIZ and UNHCR in the three countries, the Ugandan situation seems to be the most conducive one in terms of regulatory, infrastructural and market environment to help the private sector growing its penetration with the support of EUF; unfortunately, it is the one where lack of coordination among various players is the most striking.

Kenya follows with a strong private sector which has been looking into camps for many years, now, but a high level of uncertainty about the political outlook and strategy regarding these settlements, as well as a regulatory environment that is not that supportive of the inclusion of refugees in society, is a major barrier to scale.

Finally, Ethiopia is a country with a set of policies and laws that aim at integrating refugees into the Ethiopian society; however, there are opportunities to improve implementation, including increasing consistency in implementation, to achieve the government's ambitions. Also, it deals with a very thin and fragile private sector which is typically risk-averse and less innovative than the other two countries.

Table 18 provides a comparison among the three countries, showing how, while for Kenya and Uganda differences between host and refugee communities are not very large, this is not the case in Ethiopia, where most preconditions to implement EUF are not met in camps. This is specifically the case for physical infrastructures and financial inclusion.

Table 18: Comparison of preconditions in refugee camps

	IN THE REFUGEE CAMPS			IN THE HOST COMMUNITIES		
	Kenya	Uganda	Ethiopia	Kenya	Uganda	Ethiopia
FINANCIAL INCLUSION						
Bank accounts						
MFI accounts						
SACCO accounts						
VSLA accounts						
Rental contract at ESP						
Credit contracts at ESP						
Leasing at ESP (incl. PAYGO)						
Mobile money accounts						
Formal jobs						
Credit history						
Collaterals						
Guarantors						
Literacy / numeracy						
REGULATORY INCLUSION						
National IDs						
SIM Cards						
INSTITUTIONS						
Commercial banks						
Micro-finance institutions						
SACCO						
VSLA						
Solar kit distributors						
ICS distributors						
Mini-grid operators						
PHYSICAL INFRASTRUCTURES						
Branches of banks / MFI						
ATM of banks						
Mobile network						
Mobile money agents						
EAS agents						
Phones						

When it comes to assessing EUF entry initiatives in the camps, the three proposals differ from each country, while keeping one aspect in common: **all the three proposals leverage on existing initiatives, present or future, rather than creating new ones. The reason being, as discussed, EUF works best with existing markets, rather than for the creation of new ones.**

Kenya proposes to stimulate and support the market presence of the KOSAP and KCB's women-centred approaches in the camps, by adding a guarantee fund that should help de-risking interventions. Uganda acknowledges that several initiatives already exist, some of which already targeting EUF, but with a very low level of coordination among each other, resulting in underperformance of each of them. It does, therefore, propose to create a coordination strategy with EUF as the main goal. Ethiopia proposes to use EUF to support the nascent local artisanal industry of CES and charcoal briquettes, thanks to which lowering upfront cost for the stove while increasing uptake of briquettes.

The study also found out that given the low level of marginality on energy products and services for rural areas, be it solar kits, cookstoves, or others, together with the relatively low penetration of **financial institutions in the target areas, financing should come directly from the ESP whenever possible**, so to lower the transactional costs that inevitably come with involving an additional partner. To achieve so, however, ESPs need to be solid enough, from a financial perspective, to provide such financial services, making **supply-side financing a relevant component of market systems**. To this end, PAYGO through mobile money seems to be the perfect candidate to this end, provided its strong presence and acceptance among final users.

To conclude, this study highlighted potential entry points for EUF in displacement settings of Uganda, Kenya and Ethiopia. It showed how such form of financing could support improved access to sustainable energy products and services, but only in contexts where markets already exist, and need to be supported further. To further support market systems, supply-side financing remains an important ally of EUF, particularly if direct financing through the ESP is to be pursued to lower transactional costs.

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10. ANNEXES

ANNEX 1: National preconditions – Kenya

3	It is a precondition
2	It could be a precondition/could facilitate the implementation of EUF
1	It is not a precondition

Table 19: National preconditions – Kenya

	THROUGH A FINANCIAL SERVICE PROVIDER (FSP)				THROUGH THE ENERGY SERVICE PROVIDER (ESP)		
	Bank	MFI	SACCO	VSLA	Rental	Credit	Leasing*
PHYSICAL							
Physical branch	This is particularly for management and client servicing purposes.		Can be present for management and client servicing purpose	Already locally present	Can be present for management and client servicing purpose	Needed as mobile money is a basic payment modality	
ATM	Not required with the bank agents being available	Not required					
Mobile network	Not a specific mobile network	Not a specific mobile network				Need in PAYGO services	
Mobile money agent	Only required where mobile money or transferred will be used	To facilitate communication and mobile payments		Payments among members, it is not required	To facilitate communication and mobile payments, also through distributors		
EAS sales agent	Some banks have integrated EAS as part of their financial products.	Needed especially in consumer microfinance approach	Sales are within the jurisdiction of EAS agents, directly engaging them			Needed as mobile money is a basic payment modality	
Phone / SIM card	To facilitate communication and payments					Needed as mobile money is a basic payment modality	
TOTAL PHYSICAL	16	15	13	11	13	15	15

* Includes PAYGO

	THROUGH A FINANCIAL SERVICE PROVIDER (FSP)				THROUGH THE ENERGY SERVICE PROVIDER (ESP)		
	Bank	MFI	SACCO	VSLA	Rental	Credit	Leasing*
FINANCIAL							
Bank account	Services are only available to account holders	Membership to each FI is a requirement (not necessarily having a BANK account)			Not necessary or required.		
Mobile money account	It is now a common practice to facilitate direct payments via the platform						
Formal job	Not the case, as one just needs to show steady income	Not required					
Credit history	This is essential, uses once income history and is left to the discernment of the loan officer	Income history tends to be used when needed (credit history check, increasingly used but not common practice yet)		Not required			
Collaterals	Depends on the type of loan as others are customized depending on the consumer and payment platform	Not often required, when asking for certain amount this is needed		Not required			
Guarantor	Required for EUF	Often not required		Not required			
Literacy / numeracy	Not a requirement but financial literacy is a complimentary product offered to ensure that the customers are able to track the pay back the FI.			This not considered to be a prerequisite			
TOTAL FINANCIAL	16	13	13	10	8	8	8
REGULATORY							
National ID	This is standard as a basic requirement. In place of a national ID, an alien ID can be used for foreign nationals.			Often not required	Standard requirement		
SIM Card	To facilitate communication and tracking, individual consumers don't have to have a personal sim card, just access to one.			Often not required	To facilitate communication and tracking		
Bank account	Required	Depending on the MFI, they need one to have bank account.	Not required				
TOTAL REGULATORY	9	8	7	4	7	7	7
GRAND TOTAL	41	36	33	25	28	30	30

* Includes PAYGO

ANNEX 2: National preconditions – Uganda

3	It is a precondition
2	It could be a precondition/could facilitate the implementation of EUF
1	It is not a precondition

Table 20: National preconditions – Uganda

	THROUGH A FINANCIAL SERVICE PROVIDER (FSP)				THROUGH THE ENERGY SERVICE PROVIDER (ESP)			
	Bank	MFI	SACCO	VSLA	Rental	Credit	Leasing*	
PHYSICAL								
Physical branch	Typically, the loan contract can be established at the branch or by the loan officer, is disbursed on the account and the client can withdraw at branch,		No obligation as most of the interaction are in person and in cash		There is typically no obligation on that side.			
Mobile network	bank mobile/agent, mobile money/agent (through push and pull) or pay directly the supplier. The repayment can be done through at the branch,				It depends on the special arrangements with the agent		Payments are exclusively done through Mobile Money	
Mobile money agent	through a loan officer, a mobile/bank agent, mobile money/agent (then push to bank account)							
Phone / SIM card	No obligation as interactions can still be done in person		No obligation as most of the interaction are in person					
EAS sales agent	A competent EAS agent is crucial for the pre- and post-sales							
TOTAL PHYSICAL	10	10	7	7	10	10	13	
FINANCIAL								
Bank account	All services are subject to first open an account		Not a precondition but can positively influence the credit scoring					
Mobile money account	They may (in remote areas) prefer to wire credit on MM		Not a precondition but can be useful when digitally linking with formal FSP		Not necessarily a precondition as cash payments are also possible			
Formal job	They are very conservative on energy EUF as it is a new line of business with customers that may be considered risky		Informal sources of revenues are also considered		Not necessarily done formally but certainly done informally by agent and partner (remittances are also considered)			
Credit history			Informally done (remittances are also considered)		Not necessarily for the first purchase but surely for extensions and up-sell services (loans, insurances)			
Collaterals			More reputational		*Energy asset itself			
Guarantor	Can be an additional security		Most of the time, informally done: among community, person or family known by the agent/partner					
Literacy / numeracy	MFIs also provide financial literacy		Not always formally required, but filling forms can be a test!					
TOTAL FINANCIAL	18	18	13	13	15	15	17	
REGULATORY								
National ID	Needed for contractualisation		Not necessary		Can be requested, depending on the level of formality of the transaction. Needed in case of use of mobile money			
SIM Card	Not necessary					PAYGO through mobile money		
Bank account	Needed for contractualisation		Not necessary		Can be requested, depending on the level of formality of the transaction. Needed in case of use of mobile money			
TOTAL REGULATORY	7	7	3	3	5	5	6	
GRAND TOTAL	35	35	23	23	30	30	36	

* Includes PAYGO

ANNEX 3: National preconditions Ethiopia

3	It is a precondition
2	It could be a precondition/could facilitate the implementation of EUF
1	It is not a precondition

Table 21: National preconditions – Ethiopia

	THROUGH A FINANCIAL SERVICE PROVIDER (FSP)				THROUGH THE ENERGY SERVICE PROVIDER (ESP)			
	Bank	MFI	SACCO	VSLA	Rental	Credit	Leasing*	
PHYSICAL								
Physical branch	Needed for EUF contractualization and management	Needed for EUF contractualization and management	Sometimes present to facilitate EUF, but not strictly necessary	Can be in form of local office, but not frequent nor strictly needed	Fairly common to facilitate physical rental payments	Can be present for EUF contractualization and management	Can be present for EUF contractualization and management	
ATM	Can be present to facilitate transactions	Uncommon						
Mobile network	Can be useful to facilitate communication			Due to local presence, not strictly necessary	Can be useful to facilitate communication		Especially relevant in case of PAYGO through mobile money	
Mobile money agent	Still uncommon form of payment	Increasing uptake of transactions through mobile money						
EAS sales agent	EAS and financing are quite disconnected	Increasing tendency to take care of sales of EAS directly						
Phone / SIM card	Can be useful to facilitate communication			Due to local presence, not strictly necessary	Can be useful to facilitate communication		Especially relevant in case of PAYGO through mobile money	
TOTAL PHYSICAL	11	12	11	8	12	12	13	
FINANCIAL								
Formal bank account	Needed for EUF contractualization and management	Needed for EUF contractualization and management	Not strictly necessary				At the moment needed in Ethiopia to allow PAYGO, but in the process of changing	
Mobile money account	Not strictly necessary		Can be helpful, but not strictly necessary				Needed	
Formal job	Often required to obtain EUF		Not required					
Credit history	Often required to obtain EUF		Basic due diligence carried out					
Collaterals	Often required to obtain EUF		Required, but often lower than banks and MFIs, or other less liquid forms (energy products themselves, harvests, etc)					
Guarantor	Uncommon			Implicit in form of community/family reputation	Uncommon			
Literacy / numeracy	Needed for contractualization		Ca be useful	Less needed	Can be useful			
TOTAL FINANCIAL	17	17	11	11	11	11	13	

* Includes PAYGO

	THROUGH A FINANCIAL SERVICE PROVIDER (FSP)				THROUGH THE ENERGY SERVICE PROVIDER (ESP)		
	Bank	MFI	SACCO	VSLA	Rental	Credit	Leasing*
REGULATORY							
National ID	Needed for contractualisation			Not necessary	Can be requested, depending on the level of formality of the transaction. Needed in case of use of mobile money		
SIM Card	Not necessary						Can be needed in case of PAYGO through mobile money
Bank account	Needed for contractualisation			Not necessary	Can be requested, depending on the level of formality of the transaction. Needed in case of use of mobile money		
Simplicity to engage for donors	Relatively simple due to high level of formality		Varying depending on scale and level of formality	Limited due high level of informality	Varying depending on scale and level of formality		Simplified in case of PAYGO
Sources of funding	Various sourcing opportunities		Varying depending on scale and level of formality	Very limited in geographical scope and sourcing	Varying depending on scale and level of formality		
TOTAL REGULATORY	9	9	11	9	9	9	9
GRAND TOTAL	37	38	33	28	32	32	35

* Includes PAYGO

ANNEX 4: Livelihood interventions with a component of PUE in Uganda

Table 22: Livelihood interventions – Uganda

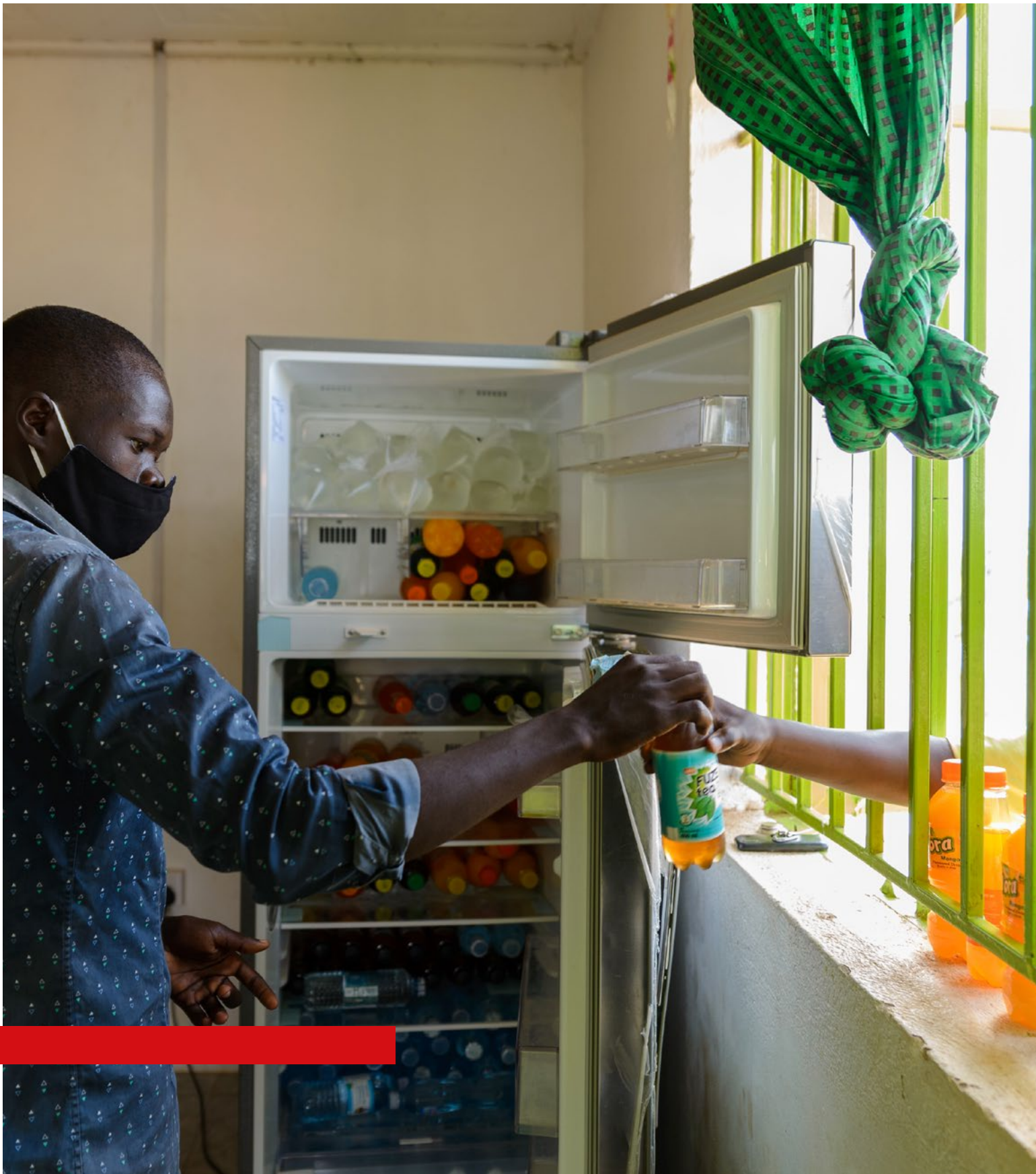
LIVELIHOOD AND LOCATION	ACHIEVEMENT	CHALLENGES	SUCCESS DRIVERS & SOLUTIONS
<p>Sustainable use of natural resources & energy in the refugee context*</p> <p>Market-based Energy Access in Refugee Settlements and Host Communities via solar-powered energy kiosks In Rhino camp</p> <p>Implemented by GIZ and ICRAF</p>	<p>Set up of 2 solar-powered energy kiosks that sell quality solar products, improved cook stoves, cold drinks etc.</p> <p>The kiosks management teams were provided with specialised training.</p> <p>One of the kiosks is managed by a South Sudanese youth group, generating income for 8-10 people.</p> <p>The awareness-raising activities proved successful to increase their confidence in these products.</p>	<p>Short implementation timelines.</p> <p>Continuous support for kiosk managers.</p> <p>Poor infrastructure i.e. bad roads.</p> <p>Lack of formal FSPs to avail credit.</p> <p>Low purchasing power and willingness to pay for energy products.</p>	<p>Utilisation of 2 different management modes allowed for a comparative analysis.</p> <p>Energy services (such as internet cafe, printing, photo shops, up-to 400 phones charged per day, etc.), don't need any kind of awareness raising.</p> <p>Conscious selection of refugee settlements.</p>
<p>Livelihood programme – WFP-Safe access to energy*</p> <p>Establishment of a green energy market that serves the local energy needs</p> <p>Implemented by WFP and International Lifeline Fund with support of OPM</p> <p>Implemented in West Nile, the southwest and Karamoja</p>	<p>3 energy kiosks were established and as of 2020, more than 700 efficient stoves were sold by these kiosks.</p> <p>One of the supported energy kiosks opened its second location without support from the project.</p> <p>2 community kilns were constructed at technical institutes to enable the local production of various ceramic products.</p> <p>5 new local vendors were on boarded and they sold more than 2000 efficient stoves by May 2020.</p> <p>2,000 households received eco smart wood stoves</p> <p>Efficient institutional stoves were constructed at 3 refugee reception centres and 20 schools to support feeding of 12,00 pupils & 2,600 refugees</p>	<p>Short timelines of projects and changes in funding can impact the project results.</p> <p>To leverage the community kilns for the production of ceramic products the required quality, further training and collaboration with technical institutes was needed & last-mile distribution.</p>	<p>Different management models for the energy kiosks.</p> <p>Use of local materials and labor kept it affordable.</p> <p>72 refugees and community members were employed as SAFE Community Trainers.</p> <p>Consumer awareness campaigns.</p> <p>Refugee policy.</p>
<p>Agriculture livelihoods; RICE project</p> <p>Implemented by GIZ Rise in West Nile</p>	<p>Market oriented agriculture (rice, cassava, horticulture, pigs, goats, bees, gnats, poultry, sunflower etc)</p> <p>Supporting 260 farmer groups (6,500 beneficiaries-50% host community and 50% refugees)</p> <p>Supporting 197 VSLAs (4,850 members who saved 892million in the first cycle)</p>	<p>Very remotely located meaning limited access to OGS and financing</p> <p>VSLAs are very informal and lack structures</p>	<p>Train VSLAs members on saving for agro investments</p> <p>Assist VSLAs to register with the commercial office of the sub county</p> <p>Provide VSLA kit (stamp, book, etc)</p> <p>Assist with record keeping, share outs, constitution set up</p>

* Humanitarian Energy: Energy for micro-enterprises in displacement settings

LIVELIHOOD AND LOCATION	ACHIEVEMENT	CHALLENGES	SUCCESS DRIVERS & SOLUTIONS
<p>Clean Energy project;</p> <p>Setting up energy kiosks in Kiryandongo and Yumbe</p> <p>Implemented by Save the Children, Enventure and Rasing Gabdho</p>	<p>Targeting 1,000 refugees (70% women, 30% youth)</p> <p>Issue vouchers which are used to acquire energy services and thus improve their welfare</p> <p>VSLAs come together to form coops that run the energy kiosks thereby boosting their income</p>	<p>Refugees tend to use clean energy solutions for not more than 3 months</p> <p>Affordability challenge</p> <p>Failure to provide support and Maintenance services</p>	<p>Social behaviour change strategy to encourage long term usage of solar and cooking solutions</p> <p>Building the capacity of VSLA member through financial Literacy training</p> <p>Maintenance training for kiosk operators</p>
<p>Step up livelihood project – tomato farming by youth for income generation</p> <p>Implemented in Rhino camp by Palm corps</p>	<p>5 groups comprising 75 youth targeted</p> <p>East and West seed company trained palm corps staff and youth farmers</p> <p>Previously 3 billion worth of tomatoes were imported into Arua. After the youth harvested, they were delivering a truck load of tomatoes every fortnight</p>	<p>Project funding was limited and it lasted for 4 months</p> <p>Market penetration was a challenge</p> <p>High cost of inputs</p> <p>Limited availability of land</p>	<p>New funder (Ayuda en Accion)</p> <p>Staggering of tomato growing to ensure constant supply</p> <p>Saving for inputs</p>
<p>Tomato and Sesame seed project in Rhino camp implemented by Palm corps</p>	<p>Added 5 new groups comprising 75 youth targeted</p> <p>East and West seed company trained palm corps staff and youth farmers</p>	<p>Market penetration</p> <p>High cost of inputs</p> <p>Limited availability of land</p>	<p>Staggering of tomato growing to ensure constant supply</p> <p>Saving for inputs</p>
<p>Agriculture livelihood project; implemented in Amudat and Acholi by ZOA and solarnow</p>	<p>Solar irrigation for small holders Acholi, Amudat and west Nile</p>	<p>Lack of awareness of solar products</p> <p>Lack of finance options</p>	<p>Creating awareness of the solar solutions and their benefits</p> <p>Linking groups to MFIs like RUFU and Vision Fund</p>
<p>ABSYR programme; implemented by ZOA in Bidibidi settlement</p>	<p>Trained 200 village agents who went back and trained group members on how to make Lorena stoves.</p>	<p>Resistance to use the more efficient energy cook stoves</p>	<p>Behaviour change training and awareness on the benefits of energy efficient cook stoves</p>
<p>Briquette making; implemented by ZOA in Arua and Yumbe</p>	<p>Trained 3 groups in Arua and 2 groups in Yumbe how to make and sell briquettes as a means of earning income</p>	<p>Lack of start-up capital</p>	<p>Linking groups to financial service providers</p>
<p>Solar for Agro forestry and energy efficient stoves; implemented in northern Uganda by LWF</p>	<p>Preserving the environment by discouraging tree cutting by encouraging purchase of energy efficient stoves. Providing subsidies to encourage uptake</p>	<p>Clean energy is expensive compared to cutting trees</p> <p>changing attitudes is tough</p>	<p>Awareness to communicate the long-term benefits of clean energy</p>
<p>Energy efficient stoves; implemented in west Nile Uganda by LWF</p>	<p>Trained artisans to make and sell stoves</p> <p>Artisans would then sell to members of the community for cash, barter or instalments</p>	<p>Affordability</p> <p>Bad attitude towards clean energy due to lack of awareness</p>	<p>Awareness programmes to communicate benefits of clean energy</p> <p>Invite companies to showcase payment modalities</p>

LIVELIHOOD AND LOCATION	ACHIEVEMENT	CHALLENGES	SUCCESS DRIVERS & SOLUTIONS
<p>Fresh Fruit Nexus – growing and exporting oranges, sweet potatoes, Turmeric and Ginger</p> <p>Implemented by DCA in Arua and Terego</p>	<p>Targeting 530 small holders from refugee and host communities</p> <p>Building strong cooperatives based on organic fruits</p>	<p>Farmers income isn't sufficient to purchase organic pesticides and solar irrigation pumps</p> <p>Saving Groups save to postpone consumption</p>	<p>Linking farmer cooperatives to MFIs</p> <p>Training savings groups to transform from saving for consumption to saving for investment</p>
<p>Protection and restoration of the environment;</p> <p>Implemented by DCA in Arua, Terego and Yumbe</p>	<p>Constructing Lorena stoves for sale @ 10,000 Ugx per stove</p> <p>Growing fruit trees that both conserve the environment/ are a source income from fruit selling</p>	<p>Lack of financing to purchase the stoves due to improper timing of savings cycle which pays out at the end of the year</p>	<p>Build the capacity of savings groups to transform from saving to postpone consumption to saving to lend and invest</p>
<p>Promotion of sustainable energy and livelihoods of refugees and host communities</p> <p>Implemented by DCA in Arua, Terego and Yumbe</p>	<p>Briquette production</p> <p>Agro forestry (setting up wood locks and earning cash for work)</p> <p>Lorena stove construction–earn 10k per stove constructed</p>	<p>Lack of financing to purchase the stoves due to improper timing of savings cycle which pays out at the end of the year</p>	<p>Build the capacity of savings groups to transform from saving to postpone consumption to saving to lend and invest</p>
<p>AMPERE**</p> <p>Build evidence for quality, affordable and reliable market-driven energy access solutions in humanitarian response programming.</p> <p>Implemented in Bidbidi by Mercy Corps Netherlands and SNV</p>	<p>3,639 solar products sold – (3,609 HH lighting systems, 30 productive use solar systems</p> <p>Partnerships with d.light Design Uganda Ltd and Village Power Uganda Ltd to introduce their services in Bidibidi, including PAYGO solar products.</p> <p>Recruitment of female sales agents and targeting female-owned and led VSLAs.</p> <p>Building a savings culture among members–up to 20 members had saved and paid for solar products.</p>	<p>The uncertainty around using refugee IDs versus national IDs during credit check</p> <p>Limited support to enter the camps and carry out market-development activities</p> <p>Taxes make the solar products costly</p>	<p>Conducive energy policies eg Comprehensive Refugee Response Framework (CRRF) and refugee act.</p> <p>Ownership of SIM cards enables mobile payments</p> <p>High energy demand</p>

** GIZ/EnDev: Humanitarian Energy: Energy for micro-enterprises in displacement settings 2021



Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Registered offices
Bonn and Eschborn

Friedrich-Ebert-Allee 32+36
53113 Bonn, Germany

T +49 228 44 60-0
F +49 228 44 60-17 66

E info@giz.de
I www.giz.de

Dag-Hammarskjöld-Weg 1-5
65760 Eschborn, Germany

T +49 61 96 79-0
F +49 61 96 79-11 15

On behalf of



Federal Ministry
for Economic Cooperation
and Development