

Market Map of off-grid energy in Uganda

Solar Home System section

2019 edition

Uganda Off Grid Energy Market Accelerator (UOMA) is a dedicated and neutral intermediary, focused on scaling off-grid energy access



We accelerate the off-grid energy market in Uganda through:

- **Research & Insights:** providing data, analysis, and insights to businesses, investors, development partners, and policy-makers
- **Coordination:** coordinating industry actors and resources to increase efficiency; and
- **Direct Interventions:** catalyzing interventions where necessary to reduce barriers to off-grid energy access

In partnership with:

SCALING OFF-GRID ENERGY: A grand challenge for development









UOMA is run by technical team supported by a cross cutting advisory board representing govt, private sector and dev partners

Core technical team



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For 2019, UOMA is focusing on 5 initiatives

Expanding access to finance	Increase access to local currency debt finance for solar operators, bridging a critical working capital shortfall and currency mismatch and enabling operators to increase affordability of units
Reaching unserved populations	Reduce barriers to better target unserved populations in Uganda, improving access for some of the hardest to reach and most in need communities
Expanding productive use technology	Support industry to test and validate productive use technologies that can achieve economic benefits for off-grid Ugandans while growing energy demand
Strengthening the enabling environment	Support public sector to create effective policies and a conducive enabling environment to increase off-grid energy uptake in Uganda
Facilitating communication & coordination	Enable more effective communication and coordination in the off-grid energy sector in Uganda, resulting in better resource allocation and accelerated progress in achieving universal access



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This is a section of the Market Map containing only insights on solar home system in Uganda please check uoma.ug for full version







Despite recent progress, gap to universal energy access continues to widen; electrification rates in UG lower than SSA average







UCOMA Uganda Off-Grid Energy Market Accelerator

~30% of population in forecast to remain unserved by grid at 2030; off-grid essential to achieve 100% access



Despite projected growth of off- and on-grid connections, 30% of UG population forecast to lack electricity access at current trajectory; off-grid solutions critical to reach unserved populations

- Uganda population expected to grow at ~3% per year, expanding from ~8M households in 2018 to over 11M by 2030
- Given planned additional connections under the Free Connections policy and growing uptake of off-grid, millions of connections forecast to come online, however ~3M households (~16M people) will remain unserved in 2030 (~30%)

Off-grid solutions will have to play a critical role utilizing technologies such as solar home systems and mini-grids



7 Sources: 1. Catalyst report 2. Off-grid Strategy concept paper 3. Uganda Bureau of Statistics, Uganda National Household Survey, 2016/2017

Through consultations we were able to map relationships & off-grid market initiatives

Interviews & research were tailored to understand objectives & how they interact with each other

Private sector	Government	Development orgs	Other stakeholders
 Understand available products, current market share, growth plans, challenges to scale and strategic differences 	 Understand different sub- industry focus areas, major initiatives underway, plans / strategies, and sensitivities 	 Review current interventions, broader mandates, preferred models and existing collaborations 	 Build holistic view of facilitating market actors & their role in capital provisioning, industry research, & coordination



Insights also include learnings from pilots run by UOMA in 2018 supporting operators to test various business models



Market map seeks to provide a holistic and objective description of the off-grid industry in Uganda and is comprised of 3 sections:



Each section contains an overview and insights section:

- **Overview:** Provides a holistic view of the specific technology presenting actors & activities
- **Insights**: Presents data-driven industry analysis to provide dimension & context to the state of off-grid development and further outlines the primary barriers to growth of today's market, highlighting opportunities for stakeholder support

Additionally, the Appendix contains <u>a summary of stakeholders</u> active in the Ugandan market

This is a section of the Market Map containing only insights on solar home systems in Uganda please check uoma.ug for full version







Solar home systems	Overview	Insights

Ecosystem commonly divided by pico lamps, small & large SHS





Solar home systems	Overview	Insights

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Supplier landscape wide-ranging & divided, with prices varying across the size of the SHS and many payment options available



Market typically divided in 3 categories, based on branding & services level:

- **Off-brand generics:** Ultra-low cost, generally sold by individual components, offer similar specs to brandname products, but often mislabeled, w/short life-span
- **Branded retail:** Brand-name, reputable systems sold via retail or through distributors, aftersales service limited to distributors. Usually purchased with upfront cash or on credit from partners
- **Branded service level:** Brand-name, reputable systems sold directly through own channels and provide aftersales services. Able to provide credit to customers, many utilizing PAYG model with 6—36 months repayment period



Several businesses are exploring different distribution models to reach last mile





Majority of sales in Uganda coming from PAYG operators; highest branch density in Central & Western regions

SHS market driven by credit sales with most operator branches in higher-density regions

Operator	Units sold in UG ¹	Branches/Distribution points in UG Pr lo sy			Price of lowest cost system			
		Total	North	East	West	Central		
fenix intl	220,000	89	9	24	26	30	\$189	SHS distribution
M-K PA SOLAR	120,000	21	10	6	4	1	\$274	branches are located
solar	25,000	34	4	6	13	11	\$480	predominantly in higher-density areas,
BrightLife	15,000	24 ²	4	5	7	8	\$70	with fewer service
Village Power	12,150	15	2	2	3	8	\$100	region
Solar today	10,000	16	-	-	12	4	\$300	
SOLANTIS	5 6,000	8	3	2	1	2	\$131	
Rest of market	~10,400 ³	Marke	t leverage	es agent	ts across r on sprea	network, no d	t enough data	<pre>Estimate represents multilight point SHS; GOGLA reports > 1.5M</pre>
Total	~420,000	207	32	45	66	64		systems sold in UG to date
								includina pico

Sources:

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1. UOMA interviews & consultations, supplemented by: <u>http://www.fenixintl.com/uganda</u>, <u>http://www.m-kopa.com/products/ ,https://www.SolarNow.eu/solar-solutions/</u>

2. Brightlife leverages the FINCA Uganda branch network but has an active agent at 8 of these branches

3. UOMA estimate of > Tier 2 products sold across the country by other distributors and small retailers



This section aggregates research & insights from pilots and reports covering UOMA initiatives





OGS sector has experienced rapid growth in investment, additional investment largely required to finance PAYG working capital needs



- Investment in sector has grown significantly, doubling from 2012 to 2016
- Annual investment in 2017 reached ~\$284M with ~\$922M cumulative funding raised since 2012
- Investment comprises of grants, commercial debt & equity, as well as concessionary loans; debt financing increasingly dominant, making up ~61% of investment in 2017



- Top OGS affiliated companies will require ~\$4.4Bn from 2017-2022; with ~\$1.9Bn in place, \$2.5Bn will need to be raised from external sources
- Large proportion of investment required will be in form of debt to finance consumer receivables & inventory
- Equity and grants still relevant to spur innovation of business models to reach hard-to-serve consumers



Solar home systems	Overview
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Despite large investment, financing still not adequate to meet needs of SHS businesses at different stages of growth

Finance need by SHS business size





Local SHS operators struggle to access capital across financing instruments due to external and internal challenges

Internal

Operators don't have proven business models for SHS & lack traction

- Early stage businesses have insufficient traction of revenues, cashflows & service delivery required by investors
- Continuously changing business models makes it difficult for investors to assess future performance

2

Businesses lack internal capacity to manage operations & obtain investor buy-in

- Limited technical expertise to articulate and implement growth strategies
- Inefficient company systems & processes for credit management

3

Lack of collateral as a pre-requisite to access financing especially from local banks

 Majority of businesses still too small to have sufficient collateral required by financiers to access commercial capital

External

Lack of available & comparable industry data to inform financing deals

- Financiers lack comparable and validated data to benchmark the industry and understand business models
- Lack of verified performance data delays financing & prolongs due diligence process

Limited finance industry capacity & sector knowledge to assess SHS businesses

- Investors have low understanding of market players, products & trends
- Financiers like local banks lack personnel particularly allocated to reviewing off-grid businesses

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Lack of standard performance indicators to guide due diligence process

 Investors lack standardized indicators to guide assessment of businesses & evaluation of financing risk



Solar home systems	Overview	Insights	1 Access to finance	
However, there are innovative financing strategies currently available to increase lending to SHS operators				
		Fin	nancing strategy	
Concessional lending	Operators a commercial & grace per	re given loans with mor loans; concessional loa iods that reduce defaul	re favorable payment terms compared to ins offer lower interest rates, longer payment tenors It risk for investors and cost of capital for operators	
Guarantees	 Local financial institutions are offered guarantees from dev't organizations to cover portion of losses in case of default from operators; usually structured according to level of risk exposure with guarantors heavily involved in due diligence 			
Off balance sheet financing	• PAYG compa the balance capabilities	anies are financed base sheet; operators would to attract more comme	d on underlying receivables without recourse on I need to improve their credit assessment ercial financing through off balance sheet	
Results based financing	 Financial inconstruction outputs that deliver on k 	centives are usually disb t will in turn increase av ey milestones	oursed to operators upon delivery of specific ailability of credit and transfer risk to operators to	
Special Purpose Vehicles (SPV)	• Emergence offered who PAYG mode	of SIV's like Microfinanc lesale debt to MFI's are	ce Investment Vehicles (MIV's) that originally e potential sources of funding to enable scale of	



OGS sector has also seen greater prevalence of local currency financing through partnerships to increase affordability of capital

	Examples	Outcomes
Syndicated asset financing facilities	• SolarNow received \$6M syndicated asset financing arranged by SunFunder designed to finance customer receivables; each financier provided \$2M	• Enhances focus on expansion of PAYG to reach over 25,000 clients and tackle unserved market
Local & multi currency debt facilities	 M-KOPA solar secured US\$55M local currency debt equivalent, led by Stanbic Bank for PAYG solar installations for 1 million households. 	• Presents a more cost-effective way to fund last mile distribution while delivering sustainable returns to lenders
Working capital facilities	• UECCC* funded by World Bank extended an \$8.5M line of credit to PFIs as working capital loans to solar providers. PFI's include: Centenary Bank, Barclays Bank, Finance Trust Bank ,	• Reduces skepticism of financial institution to lend to solar operators
	Stanbic Bank and Post Bank	

Investors are more inclined to offer debt financing to large companies, leaving smaller businesses to struggle for more expensive debt:

 Since 2012, capital deployed has largely been allocated to already established businesses; over 80% of capital financed was attributed to ~10 market leading companies

Sources: 1. "SunFunder closes \$2m multi-currency debt facility in Mozambique with MFX Solutions for SolarWorks!," SunFunder, https://sunfunder.com/news/solarworksdebtfacility 2. "SunFunder leads \$6m syndicated receivables financing facility for SolarNow - SolarNow Uganda," SolarNow Uganda, https://www.solarnow.eu/sunfunder-leads-6m-syndicatedreceivables-financing-facility-solarnow 3. "Breaking records in financing off grid," M-KOPA Solar, http://www.m-kopa.com/breaking-records-in-financing-off-grid/





Access to finance

Consultations with local banks in East Africa revealed 4 key risk drivers that limit lending to SHS businesses

1. Enterprise risk	 Banks struggle to find pipeline of businesses suitable for available ticket sizes & that match traction requirements; those with sufficient traction require larger loans Misalignment of bank off-grid lending efforts and overall credit strategy influences design & performance of loan products; high transaction costs of financing also limits deals closed
2. Operational risk	 Limited number of bank personnel focused on off-grid lending; lack technical expertise to understand SHS trends, business models and evaluate investment risks Typical bank processes & systems are not synced to technology used by SHS businesses and cannot capture relevant data to assess performance e.g. links to mobile money data
3. Legal & regulatory risk	 Bank interpretation of reporting standards like IFRS 7* leads to more stringent collateral requirements for SHS businesses to account for unsecured loans Single lender limit of USD 2M in Uganda hinders financing offered to larger SHS businesses; also limits large international banks with local presence
4. Investment risk	 Due to high perceived risk of lending, banks offer small loans, with short tenors & high interest rates that are expensive for operators in comparison with social impact investors Majority of businesses are at growth stage and have high defaulting potential due to low sales & evolving business models; uncertainty of credit worthiness limits bank financing



Solar home systems	Overview	Insights
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To increase lending, banks need to build in-house capacity, develop new products, business pipeline and stakeholder partnerships

Build in-house	
capacity	

- Conduct consistent training for bank credit teams to increase knowledge of off-grid sector
- Refine current bank systems to align with industry KPI's

Develop business pipeline

- Partner with intermediaries to build pipeline; long run, opportunity exists to offer pre-investment support to businesses
- Participate in sector events to identify & build relationships with potential businesses

Design new products

- Review & assess current product design to better align with bank strategy
- Onboard external capacity to support suitable product development

Partner with key stakeholders

- Partner with dev't organizations to access financing facilities to boost liquidity
- Engage external financiers like DFI's to obtain guarantees that hedge investment risk



In order to reach unserved it is critical to address themes on affordability, access & awareness



Affordability

Important to understand how to reach the poor & insecure non-poor:

- Some cannot fully afford current products or WTP lower than products available
- Some earn seasonal income and will require innovative finance structures to serve
- Live below poverty line cannot afford the products available

Important to think through what models are commercially viable & effective:

Access

 Sparse population & poor infrastructure has made it costly to set up branch networks to serve entire region



Awareness

Important to understand what is framing consumer's understanding of solar and purchase of energy:

 A number can afford but do not trust or have skewed perception of value & benefits





Customers segmented based on how their purchasing power would be influenced by a change in income or price Customers segmented based on their ambitions around energy, how much they understand or value solar, how adapted products are to their needs and who they trust to make a purchase



Affordability: Leading operators sell to upper market, with lower income populations unable to afford, left to buy low-quality units



^{*} Service-level defined as products offered by businesses able to provide servicing & warranties. These products are of higher quality and are more expensive than off-brand generics.



Distribution: Operators are increasingly focusing on distribution models for women & refugees to achieve social and business impact

	Social impact	Business case
Women	 Opportunity exists to improve livelihoods of women Majority of women are primary caretakers of households and have limited time to participate in income generating activities SHS access increases amount of time available for women to manage own businesses and earn incomes 	 Potential exists to boost revenues of SHS businesses Women are considered hidden influencers and play a critical role in making SHS purchase decisions Recent studies show that women can sell to twice as many households as compared to men due to their network effect
Refugees	 Opportunity exists to improve livelihoods of refugees UG hosts ~1.4 million refugees, majority of whom use wood fuels & kerosene to meet energy needs There is a growing need to find better ways for refugees to achieve self-sufficiency and serve as economic engines in their host countries 	 Potential exists to fill energy gap in refugee camps through PAYG SHS Refugees provide an opportunity for PAYG operators to test new markets & products Increasing energy access to refugees enables outreach to new off-grid customers and hence growth in operator sales



Women: **Distribution of SHS to women has been limited by perception of their ability to pay & make purchase decisions**

Women are perceived as unable to purchase SHS

Sales agents don't perceive women as final decision makers for SHS

• Since majority of men are breadwinners in homes, sales agents usually focus on selling to them as they can make the purchase decisions

Women are not deemed creditworthy since they struggle to afford SHS & access finance

- Operators are hesitant to sell to women since as they rarely manage income generating activities
- Women are also not considered creditworthy because they struggle to access finance due to lack of collateral

Operators don't include women as part of their distribution strategies

 Operators usually focused on meeting sales targets and don't consider women when developing sales & distribution strategies

However, innovative models are being explored

To reach more women, operators are exploring innovative women-focused distribution models

- Targeting women-led activities like market days
 - Market days are used to demonstrate & sell
 SHS products to women; also help operators identify potential customers
- Including women as part of sales teams
 - Operators like Solar Sister, have women as part of their sales teams to influence other women purchase SHS
- Leveraging women influencers to inform purchase decisions
 - Community women influencers are used mobilize other women and speak positively about the purchase of SHS
- Increasing awareness through informal community-based women financial groups
 - Operators partner with women financial groups to distribute & offer credit for SHS





Women: More efforts are required by SHS operators to consider women when developing distribution strategies

Adjust mindsets of sales personnel

Communicate importance of gender inclusion to adjust mindsets of sales & distribution teams

• Communicate impact created by increasing access of SHS to women as well as their role in making purchase decisions and influencing communities

Train distributors to reach out to women

- Train sales personnel on more effective techniques of distributing SHS to women
 - Train distributors on how to tailor strategies to reach more women; for example, include women-specific customer messaging during after sales services

Incorporate gender focus in sales strategy

Incorporate women-focused sales approach as part of distribution strategy for SHS operators

• Develop sales strategy that includes focus on reaching out to more women; recognize women as end consumers of SHS, assess and include their needs in product design



solar r	nome sy	stems

Refugees: SHS penetration & distribution to refugees in UG has been limited thus far by several challenges

Limited information about refugee camps	 Limited information exists about the demographics, population, incomes & business activity in camps 	Commercial approach limited by hand-out culture	 Refugees often receive hand- outs from humanitarian organizations and might not adjust to commercial approach
Impermanence of potential customers	 Refugees are uncertain about resettlement in countries of origin hence don't invest heavily in energy products 	Logistical constraints to supply goods to camps	 Refugee camps are located in remote areas making it difficult to distribute & supply goods to customers
Insufficient market	 Operators are not certain about SHS demand in refugee camps in as much as the need is present 	Low level of connectivity & mobile banking	 Many don't have phone access and can't access mobile banking services to support PAYG models
Refugee ID's not accepted by some companies	 Refugee ID's are not accepted by some companies in UG limiting registration for services like mobile money, banking, etc. 	Limited data on refugees	• Due to insufficient documents, operators are unable to obtain historical data on refugees to access their credit worthiness



Refugees: Public private efforts like the Smart Communities Coalition seek to increase connectivity, access to digital tools and energy

The Smart Communities Coalition (SCC) is a public private effort co-chaired by USAID Power Africa & Mastercard to transform the operating model in refugee camps and settlements

SCC will mobilize & organize stakeholders according to their core strength to address fundamental pillars of connectivity, digital tools & energy access



• **Connectivity:** A recent study found that mobile phone and internet access is as critical to refugees' safety and security as food, shelter & water



• **Digital tools:** Implementing agencies increasingly rely upon digital technology to reach refugees and locals; digital tools open up new education, training, livelihood and information opportunities



• **Energy access:** Power is not provided in settlements as a service, so refugees rely on poor quality, expensive diesel generators; SHS using PAYG models offer opportunities to enable livelihoods

SCC objectives

- Increase efficiencies in camp management and service delivery
- Empower refugees to provide for themselves and their families
- Equitably address the needs of host communities in/around targeted settlements

SCC ecosystem approach

- Identify market opportunities
- Establish cross-sectoral working groups
- Enable exchange of expertise and ideas across the working groups
- Implement pilot projects via working groups
- Track KPIs as part of M&E and learning



Refugees: Recent study reveals findings on digital technology for refugees; insights relevant for mobile-enabled PAYG SHS

MasterCard & Western Union conducted a study to understand digital technology infrastructure of refugees; the study was based on 2 largest refugee settlements in Kenya – Kakuma & Kalobeyei

- From research conducted, a digital model was created to focus on mobile money, digital vouchers & cardbased solutions and key insights were observed
- D Camps comprised of three key income segments, which include impoverished new arrivals, intermediate residents & economically active residents; economically active refugees more commercially viable for PAYG SHS
- 2 Refugees that have spent a long period in the camp have a higher likelihood of transitioning from impoverished to more economically active making them able to afford SHS
- 3
- Most refugees that contributed to market research had smart phones, bought from local merchants through installment plans; phones were particularly used to communicate with networks and receive funds. Access to mobile phones will support payment collection through mobile money
- Prefugees prefer withdrawing remittances and saving in cash or mobile money; majorly use remittances for food, lighting, education and purchasing business assets like sewing machines
- 5 Financial aspirations and desires of those in Kakuma and Kalobeyei are no different than higher-income segments despite their complex financial situation

Opportunity to leverage DFS in the camps to extend energy access



Refugees: To increase SHS distribution to refugees, important to assess roles of various stakeholders in tackling challenges

PAYG SHS providers	 Participate in piloting distribution models to refugee camps, since Uganda has an open market policy that allows free movement of goods Recruit field agents that understand local context of camps & can train refugees on importance of SHS and appropriately incentivize sales Set up stock shops near refugee camps to solve logistical challenges Offer wide range of pricing structures and flexible repayment terms to meet differing abilities to pay
Humanitarian organizations	 Provide financing to SHS operators to de-risk initial credit systems offered to refugees, given the uncertainty around their ability & willingness to pay as well as permanence Give operators local context on regulations and ensure they are aligned with humanitarian mandate Reduce free and low-quality solar systems being offered to refugees as they distort the market and reduce willingness to pay
Mobile Network Operators (MNO's)	 Directly partner with SHS operators to use the MNO's mobile services and networks as a mode of payment for solar clients Ensure mobile money access is within close proximity to refugee camps; for example, have mobile money agents close to the camps



Awareness: Important to understand factors that influence consumer behavior in order to improve perceptions in the market

To influence consumer decision-making and increase solar uptake, effective communication is needed across 4 key areas:

Building awareness	Changing mindsets	Gaining credibility	Influencing purchase
<i>Consumer awareness</i> What is solar?	<i>Consumer education</i> Why solar?	<i>Value proposition</i> How to select?	<i>Distribution & quality</i> Where to get quality?
Exposing consumers to basic understanding of off-grid solar products	Educating consumers on benefits of using solar products	Helping consumers understand the different products available & how offerings can be adapted to their needs	Communicating where & who can provide quality approved products

Effective communication in this process should incorporate a concrete understanding of the target audience:

- What cultures and norms influence purchase & ambitions around energy for this group?
- Who are the influencers and decision makers in the community?
- What value and benefits are most appealing to specific regions and groups?



Awareness: Based on pilots, operators leveraged existing community groups & partnerships with mobilisers to create awareness

Consumer response and perception was greatly defined by community influencers

- From pilots conducted, consumer perception and interest in awareness campaigns and road shows was shaped by the kind of influencers hosted; for example, LC's, MP's, community leaders, etc.
- **On ground coordination by operators and local mobilisers was more effective in creating awareness**
 - It was important to have operator teams work with local community mobilisers who could easily influence their fellow members and offer context on when to hold awareness initiatives

3 More effective to conduct trainings and info sessions through already existing community groups

• Easier to reach and mobilize large numbers of potential consumers through existing groups of farmers, women, savings, faith-based groups, etc.



Information communicated ought to resonate with consumer needs and community characteristics

• Necessary for operators to understand characteristics of consumers in targeted communities of outreach and tailor messaging to suit these groups



Follow up group meetings and one-on-one after sales services were key in influencing purchase

• Initial awareness campaigns needed to be coupled with subsequent on ground group visits to offer after sales services and influence purchase decisions; these built credibility & trust in operators


Fiscal policy and product standards for SHS are a large focus in creating a conducive enabling environment for off-grid acceleration

Fiscal policy



Section looks at current tax regime & fiscal interventions in order to:

- Assess impact of current tax regime and draw comparisons with various tax scenarios
- Consider other fiscal policy interventions like subsidies and assess their impact on SHS uptake
- Goal is to obtain flexible tax structure that balances tax revenues & consumer uptake

Product quality & standards



Section looks at standards regulating quality of SHS products on the market in order to:

- Assess current standards on product quality, identify existing gaps and recommend ways to implement solutions
- Develop strategies that can build consumer trust in suppliers & increase credibility of products on the market



Fiscal policies: UOMA conducted fiscal policy analysis that revealed current tax regime as reasonably conducive for SHS growth

Fiscal policy analysis assessed five tax scenarios for SHS components & potential effects on uptake

- Currently, SHS operators are exposed to corporate income tax and product-based tax like Value Added Tax (VAT) & import duties; analysis focused on VAT & import duty only
- Tax scenarios reviewed included:
 - Current tax regime with exemption on solar generation components only
 - All taxes removed
 - Only VAT applied to both solar generation & transmission components
 - Only import duties applied to both solar generation & transmission components
 - All taxes applied

Findings from the analysis revealed that current regime is conducive for SHS growth

- Full VAT and import duty exemptions on solar products was not suitable due to difficulties in enforcement; despite having the largest growth in connections, it also led to significant loss in gov't tax revenue of >\$18M
- Similarly, without any exemptions on solar products, government accrued tax revenue of ~15M but enabled only 4% growth in connections
- Current tax regime with VAT and import duty exemptions only on solar generation accrued government tax revenue of ~\$18M and had a 10% growth in connections hence optimal and favorable for growth

While current tax regime is favorable for SHS growth, more efforts need to be attributed to effective implementation

Fiscal policies: Implementation of fiscal policies largely limited by inconsistent application of taxes across SHS components

Tax policies are inconsistently applied across SHS

Lack of clarity on current tax policies & inconsistent application of tariffs across similar solar components

- Operators report inconsistent taxes and exemptions being applied to similar product components; for example:
 - Solar generation components like panels
 & batteries are tax exempted when part
 of plug & play systems
 - However, in some cases, batteries are not exempted especially when imported as stand-alone components

Inconsistent tax application also driven by lack of trust between regulators & operators

 Tax regulators are hesitant to offer exemptions to some stand-alone components as they are not fully certain of operator's intended use of these products However, efforts are underway to tackle barriers

Industry stakeholders like Uganda Solar Energy Association (USEA) plan to foster uniform application of taxes

- Currently developing a tax handbook with Uganda Revenue Authority (URA) to provide clarity on tax guidelines for market players
- Provides approval letters for several operators to obtain exemptions when importing solar components
 - Operators will need to be registered members of USEA to obtain approval letters

To ensure effective implementation, more efforts need to be directed to creating awareness & clarity on tax policies



Fiscal policies: Analysis also examined ways to stimulate demand and supply of solar home systems through subsidy options

1 Stimulating supply by supporting operators to reach unserved populations

- **Operator incentives:** Government agencies can incentivize operators to distribute to hard to reach areas that are not commercially feasible through subsidy and other results based funding
- **Working capital facilities:** Financial institutions can provide working capital to operators to finance inventory for products offered to consumers on flexible credit terms

Analysis recommended phasing supply stimulating interventions first before demand is increased

2 Stimulating demand by offering price subsidies to consumers to increase affordability

- **Direct subsidies:** Government can work directly with consumers to finance purchase of SHS products at a lower price; this can be done through vouchers
- **Partial subsidies:** Government can incentivize operators to reduce prices by funding a proportion for their costs that would have reflected in price
- **Consumer financing:** Financial institutions can offer affordable and flexible credit options to end consumers to support purchase of SHS

While interventions are helpful in increasing demand and supply of SHS products, they cannot fully serve entire unserved population

- Interventions like working capital facilities will increase number of operators in the market and volume of sales, but only serve consumers that can afford these products in commercially attractive areas
- Demand stimulating subsidies run the risk of slowing down sector growth and can only be implemented in specific regions in the country



Fiscal policies: Analysis also examined ways to stimulate demand and supply of solar home systems through subsidy options

Interventions are have most impact when phased; first stimulating supply then

- Interventions like working capital facilities will increase number of operators in the market and volume of sales, but only serve consumers that can afford these products in commercially attractive areas
- Demand stimulating subsidies run the risk of distorting the market and should only be implemented in specific regions of the country after commercial options have scaled

1 Stimulating supply by supporting operators to reach unserved populations

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Fiscal policies: Important to address challenges limiting effective implementation of fiscal policies

Insights

Strengthen capacity of local tax authority	•	Strengthen capacity of local tax authority by investing in larger customs personnel & screening technology to ensure effective implementation of policies for various components
Create clarity on current tax policies	•	Develop handbook that clearly outlines guidelines to understand tax treatment for each SHS component Conduct convenings with operators & regulators to discuss misinterpretation of tax policies and align on application across products
Review & implement efficient subsidy delivery models	•	Pilot subsidy delivery models provided either to operators or directly to consumers; also market package models for operators. For example, offer subsidies for a single supplier to sell systems in a specific area
Train operators & regulators on fiscal policies	•	Train both operators & regulators on tax policies to ensure uniform application of taxes across solar components; conduct follow-up trainings when policies are updated in order to build trust between operators & regulators



Challenges

Inadequate quality standards Standards don't cater for componentbased and inadequate for plug & play for example, only 30 standards cover generation components and not as whole kits

Limited equipment to test products

 UNBS doesn't have sufficient equipment to test quality of imported products and determine operator compliance of standards

Limited team capacity • Lean inspection team unable to serve entire country; UNBS currently has 15 personnel that work across all sectors and regions in the country

Lack of awareness on standards •

Operators, consumers and quality regulators lack awareness of standards guiding quality of various SHS components

Ongoing strategies

Enabling environment

- UNBS currently working to include quality standards for componentbased systems
- UNCDF & ERT III are in the process of enabling UNBS purchase machinery to test product quality
- UNBS is partnering with Pre-Export & Verification of Conformity contractors to test product quality from country of origin
- REA will work with UNBS under ERT III to promote quality assurance & awareness of solar products in rural areas



Industry stakeholders







Associations: Represent private sector interests, advocate policy issues to government

Uganda National Renewable Energy and Energy Efficiency Alliance is an umbrella body whose aim is to avail a platform that consolidates Uganda energy sector leadership Mandate & description Membership & capacity >100 members consisting of engineers running ٠ Seeks countrywide mobilization of solar **USEA** local businesses and solar product distributors; Uganda Solar providers, coordinating stakeholders, playing an receives targeted support from dev partners like **Energy** Association advocacy role and capacity building RECP, DFID, UNCDF & PSFU **BEETA** Promotes biomass energy efficient technologies 50 member companies involved in production of Bio-mass Energy through networking, sharing information, and biomass efficient technologies, such as briquettes Efficient developing knowledge among member & stoves, & institutions involved in research and *Technologies* organizations / individuals development of biomass energy Association **HPAU** Champions hydropower development in the Membership open to private sector companies, Hydropower hydropower sub-sector through advocacy, organizations & associations, consumers, & policy Association of capacity devt & resource mobilization makers; receives support from GIZ, CREEC, & WWF Uganda **EEAU** Aims to foster provision for quality energy Large capacity of technical members working to Energy Efficiency efficiency services, enhancing research, get association accreditation to certify Energy Association of innovation & knowledge transfer Efficiency Professionals in the country Uganda **UNBA** Seeks to unite and support stakeholders as well National umbrella organization of the UG biogas Uganda National as existing regional associations in the biogas sector; four associations organized according to **Bio-gas** Alliance regions, supported by partnership with GIZ sector



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Work in Uganda

Associations: Represent private sector interests, advocate policy issues to government

Organization



- UNREEEA is an NGO for profit incorporated 2014 as result of the private sector players in the various renewable energy and energy efficiency sub-sectors signing a memorandum of understanding to come under one umbrella body. The primary role of the Uganda National Renewable Energy and Energy Efficiency Alliance (UNREEEA) is to avail a platform for consolidating the renewable energy and energy efficiency private sector wing as well as improving its business environment
- The association members of UNREEEA include: Biomass Energy Efficient Technologies Association, Uganda National Bio-gas Alliance, Hydro-Power Association of Uganda, Uganda Solar Energy Association, Energyy Efficiency Association of Uganda, Wind Power Association of Uganda
- The alliance aims to among other objectives:
 - Identify and disseminate best practices related to market development for renewable energy and energy technologies in Uganda.
 - Establish permanent working relationships with government institutions, civil societies as well as other sector stake-holders in the energy sector.
 - Initiate and upgrade a strong private sector led approach in the development of the renewable energy sub-sector in Uganda



Associations: Represent private sector interests, advocate policy issues to government

Organization



Work in Uganda

• Uganda Solar Energy Association was formed by companies operating in the solar sector with support from the Private Sector Foundation Uganda and had 120 members by end of January 2019.

Others

• The aim of USEA is to facilitate business growth and promote self regulation and aimed at spurring off-grid solar industry-led advocacy and coordination to support universal energy access

To further its' objective, USEA has partnered with the following organizations:

- USAID's Power Africa Uganda Electricity Supply Accelerator supporting USEA in solar market development, public awareness and promotion, creating linkages through the supply chain, business development and capacity and monitoring and evaluation
- UNCDF/DFID market sales data collection in collaboration in with GOGLA & Dalberg data insights to run a data collection pilot for the sector, business development services, media and PR campaign to increase visibility and reach and tax advisory services in conjunction with URA & government to develop a tax handbook
- **PSFU/WORLD BANK** Through the World Bank Energy for Rural Electrification project (implemented by PSFU), USEA has obtained support in setting up the secretariat infrastructure, hiring staff and providing HR & Finance Expertise as well as TA in business strategy and financing models to adopt for an association



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Financial institutions & donors provide capital to the off-grid sector to enable scale

Many investor types exist with several active players; some examples below



ndustry stakeholders	Operators	Financiers	Dev partners	Government	Others
	_			• •	• • •

A number of organizations have funds in place with an energy focus in Uganda

Organization	Focus Areas	Instruments Used	Capital committed in EA	Companies invested in
Bamboo Capital Partners	Clean energy through innovative disruption Off-grid technology	Equity Debt	\$52M	BboX Greenlight Planet
OikoCredit	Off-grid solar Off-grid projects focusing on SDG7 Clean cooking	Debt Equity	\$90M	Bbox PEG Africa SolarNow
Crossboundary Energy	Aggregate finance for medium scale renewable self-generation projects	Equity	\$33M	Garden city Kigali Genocide Memorial
Symbiotics	Unspecified	Debt	~\$45M	M-KOPA Zola-Electric
Cordiant Capital	Unspecified	Debt	\$564	Off-grid Electric (now Zola-electric)
CDC Group	Renewable energy	Debt	~\$27.5M	Off-grid Electric d.Light M-KOPA
Nordic Funds	Unspecified	Equity Debt	~\$15M	М-КОРА



Dev partners Go

Government Others

Many recent debt deals in the region

Investor	Company	Amount	Date
SunFunder, responsibility, Oikocredit	SolarNow	US\$9m	2019
EIB	d.Light	US\$29m	2018
ElectriFI, TRINE	Azuri	US\$20m	2018
Bamboo Capital Partners	BBOXX	US\$50m	2018
responsAbility	Mobisol	US\$12m	2017
Stanbic Bank, CDC, FMO, Norfund, Triodos, responsAbility, Symbiotics	M-KOPA	US\$80m	2017
Banque Populaire du Rwanda (Atlas Mara)	BBOXX	US\$2m	2017
SunFunder	SolarNow	US\$2m	2016
Oikocredit	BBOXX	US\$5.3m	2016
Packard Foundation, Ceniarth, the Calvert Foundation	Off-Grid Electric	US\$45m	2016
OPIC	SunFunder	US\$15m	2016
CBA	M-KOPA	US\$4m	2016
responsAbility	Off-Grid Electric	US\$18m	2016
SunFunder	d.light	US\$2.5m	2016
OPIC, Rockefeller Foundation, MCE Social Capital	SunFunder	US\$21m	2016
Developing World Markets	d.Light	US\$7.5m	2016
Oikocredit, responsAbility	PEG Africa	US\$1.5m	2016
OPIC	Nova-Lumos	US\$50m	2016
Developing World Markets	Off-Grid Electric	US\$7.5m	2016
DEG	Mobisol	Undisclosed	2015
LGTVP-led	M-KOPA	US\$6m	2015
Oikocredit	BBOXX	US\$0.5m	2015
IFC	Off-Grid Electric	US\$4.5m	2015
Cordiant Capital	Off-Grid Electric	US\$2.5m	2015
Centenary Rural Development Bank	SolarNow	Undisclosed	2015
Acumen	SolarNow	US\$1.4m	2014

>\$600M debt financing in East Africa over the last few years demonstrate increasing bankability of offgrid sector, particularly SHS



50 Source: UOMA interviews & research; all data publicly available

Others

A number of facilities have been set up in the region to promote the off-grid energy sector (1/7)

Fund/Facility	Purpose	Focus	Instrument	Fund Size	Region Focus
Acumen Fund	Support, scale and learn from innovative energy companies over 3 yrs	Hand-held solar power, cook stoves, off-grid, home systems, bio- gasification systems	Equity Debt Mezzanine Grants	\$64M	East & West Africa
Mobile for Development Utilities Innovation Fund	Test & scale the use of mobile to increase access to energy, water and sanitation	Seed grants and market validation grants	Grant	\$2.6M	SSA
SunFunder	Specialist debt financing partner for solar <i>companies</i> active in off-grid residential, commercial & industrial	Off-grid, productive use and C&I solar	Debt	\$50M	East and West Africa
Global LEAP awards	Highly energy-efficient, durable, off- and weak- grid appropriate	Productive use	Grant	£100k	SSA



A number of facilities have been set up in the region to promote the off-grid energy sector (2/7)

Fund/Facility	Purpose	Focus	Instrument	Fund Size	Region Focus
SIMA Fund for Off-grid Solar	Provide commercial capital and advisory to energy businesses with financial, social, and env. impact.	High risk, earlier stage businesses	Debt	\$75M	SSA
Solar Frontier Capital	Provide local currency lending for pay-as-you-go off- grid solar companies across sub-Saharan Africa.	PAYG companies	Debt	\$100M	Africa
Off-grid Energy Access Fund	Catalyze local financial markets' support for innovative energy access strategies	The household energy access sector including distributors, manufacturers & credit providers	Debt	\$500M	SSA
TRINE	Invest in solar energy in growing markets	Solar Energy	Crowdfunding	Dependent on co. & funds raised	SSA



A number of facilities have been set up in the region to promote the off-grid energy sector (3/7)

Fund/Facility	Purpose	Focus Instrument		Fund Size	Region Focus	
Pioneer Energy Investment Initiative	Support, scale, and learn from innovative energy companies over the next three years.	Energy generation (SHS, Solar & hybrid mini-grids) & Energy usage (Innovations for energy use)	Common & Preferred Equity, Convertible Debt	\$20M	East & West Africa	
Energy Entrepreneur Fund	Dev. of state of the art tech., products & processes in energy efficiency, power generation, heat and electricity storage	SME's Incubation support	Mezzanine Debt	\$50M	SSA	
ResponAbility Energy Access Fund	Provide working capital to manufacturers & distributors of modern energy products	Solar, biomass, geothermal & wind distributed generation (captive generation & mini- grids)	Equity & Quasi- equity	\$30M	Kenya, Ug, Tz &Rwanda	
African Renewable Energy Fund	Increase renewable energy generation in Africa.	Small hydro, wind, geothermal, solar, stranded gas and biomass projects)	Equity	\$10- \$30M/co	SSA excluding SA	



A number of facilities have been set up in the region to promote the off-grid energy sector (4/7)

Fund/Facility	nd/Facility Purpose		Instrument	Fund Size	Region Focus	
Efficiency for Access Coalition	Supports and accelerates innovation in off-grid and weak grid appliance technologies and markets.	Productive Use	Grant	\$1M	SSA	
Facility for Energy Inclusion Off-Grid Energy Access Fund	Development of state of the art tech., electricity storage	SME's Incubation support	Mezzanine Debt	\$50M	SSA	
EU-Africa Infrastructure Trust Fund	Mobilizes additional finance for infrastructure projects in sub-Saharan Africa	Geothermal, hydropower, solar & wind power, transmission lines, sustainable cooking fuels	Grants blended with long-term financing	~\$920M	SSA	
Emerging Africa Infrastructure Fund	Encourages and mobilizes private investment in infrastructure in SSA to promote economic dev.	Energy, Transport Water & Sanitation ICT, Agribusiness & Mining	Senior, subordinated or mezzanine debt	~\$1.2M	SSA	



A number of facilities have been set up in the region to promote the off-grid energy sector (5/7)

Fund/Facility	acility Purpose		Instrument	Fund Size	Region Focus
Development Innovation Ventures	Provide flexible, tiered grant funding to test and scale evidence-driven innovation to any development challenge	Sector agnostic	Grant	Not available up to \$5m/co	Global
Sustainable Energy Fund for Africa	Supporting private- sector led economic growth through the efficient utilization of untapped clean energy resources.	Clean energy	Grant and equity	\$95M	SSA
USAID-Derisking PAYGO	Mobilizing additional finance for SHS co.s that wish to expand sales of PAYGO SHS in refugee settlements	PAYG SHS	Grant	Not available \$145k- 175k/co.	Uganda
AlphaMundi Foundation – Powering Ag	Catalyzing financing for businesses providing clean energy solutions that inc. ag. productivity and/or value in developing countries.	Irrigation co.s operating at the nexus of clean energy & agriculture	Grant, Debt, Equity or mezzanine financing	Not stated \$100k- \$2m/co	SSA



A number of facilities have been set up in the region to promote the off-grid energy sector (6/7)

Fund/Facility	Purpose	Focus	Instrument	Fund Size	Region Focus
BEAM	Cloud-based platform, aiming to provide developmental infrastructure for off-grid energy services across SSA	Off-grid energy	Equity	\$5M	Africa
Solar Electric Light Fund	Design & implement solar energy solutions to assist people living in poverty	Solar	Grant	Not available	Uganda
Energy Access Venture Fund	SMEs active in electricity generation and distribution, and electricity related services in SSA	SHS, Micro-grid infrastructure & hybrid technologies	Equity Quasi-equity	\$55M	EA and Southern Africa
The EnAccess Foundation	Address innovation challenges that renewable energy co.s face through lack of financing	Irrigation co.s operating at the nexus of clean energy & agriculture	Grant, Debt, Equity or mezzanine financing	\$0.5M	EA and Southern Africa



A number of facilities have been set up in the region to promote the off-grid energy sector (7/7)

Fund/Facility	Purpose	Focus Instrument		Fund Size	Region Focus
Biodiversity Investment Fund	Providing attractive loan financing for businesses that can demonstrate impact or contribution towards biodiversity in Uganda	Off-grid energy	Equity	\$50M	Africa
EnDev Uganda	Giving support in energy policy, improved biomass technologies, rural electrification & energy efficiency.	Pico PV & SHS Grid densification	No info	€12.25M	Uganda
EEP Africa	Providing early stage & catalytic financing to innovative clean energy projects, technologies	Solar PV	Grant	Not available €200k – 500k/co.	EA and Southern Africa
Frontier Energy II Fund	Developing, constructing and operating renewable energy generation projects	Renewable energy	Equity or mezzanine debt	\$60M	SSA



The European Union is supporting a number of programs to influence the private sector and advance off-grid access (1/2)

European Union (EU)	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Scaling-up rural electrification using innovative solar photovoltaic (PV) distribution models ¹ Ongoing	Image: The series Image: The series <	Scale up the use of solar PV systems at schools, health centers, and business levels in the districts of Kasese, Arua, Masindi and 17 other districts in Albertine & build local capacity to install & maintain solar PV systems	 Provide business training & specific solar PV energy training to CBOs Provide 51 social institutions with solar PV systems Set up solar mini- grids in 6 trading centers in Kasese and Rubiziri districts 	 1341 SHS sold Solar systems (1000W each) installed in 31 schools and 20 health centers in 6 districts Contractor selected for installation & mgmt of 6 mini grids Capacity of CBO's to install & manage solar photovoltaic tech. strengthened 	Implementers: WWF in partnership with Kasese District Local Government and Enterprise Uganda Foundation Funders: ACP-EU
Access to energy services in rural and peri-urban areas in Northern Uganda (Teko Wa Project) ² Ongoing	SHS Cook stoves Bio fuels	 Sustainable management of bio – energy resources, increasing use by households and social institutions of solar PV energy and energy efficient cook stoves 	 Provide a no. of social institutions with energy efficient cooking stove and solar systems Disseminate, in co-op with private co.'s, SHS cooking stoves to households Inc. awareness & build capacities of local communities in sustainable mgmt. of bio- energy resources 	 2924 ha of woodlots & orchards established within by the project & a no. of tree seedling biz. set up 35,366 households & 2 institutions accessed energy efficient stoves 25,750 households & 2 institutions accessed with SHS for lighting 	 k Implementers: Church of Sweden in Partnership with Lutheran World Federation Uganda Funders: EU



The European Union is supporting a number of programs to influence the private sector and advance off-grid access (2/2)

European Union (EU)	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Providing access to modern energy for northern Uganda (PAMENU) ¹ Completed	SHS On- grid Cook stoves	Project focused on increasing the use of solar PV, improving household cookstoves and mini-hydro power for small grids	 Disseminate solar PV and improved stoves Build capacity for intermediaries & training of local stove builders Create awareness campaigns Coordinate installation of MHP and mini-grids 	 Distribution of clean cookstoves to hhs Street lighting project in Yumbe Town Council Construction of the pico-hydro power sites Provision of health centers with solar PV & drug storage 	Implementers: GIZ Funders: ACP-EU
Scaling up access to modern electricity services on a regional scale in rural Sub-Saharan Africa by means of a fee for service business model ² Ongoing	È SHS ∰ Mini- grids	Working to scale up access, in the predominantly rural, poor communities of the targeted countries in Cameroon, Mali, Uganda & Guinea- Bissau	 Provide a number of households and SMEs with access to energy services via SHS and solar mini-grids Facilitate bi-annual workshops for areas in the four countries concerned 	 The project has 3460 new SHS customers in Mali and Uganda (42% of the target). Target achieved in Mali and 60% customers recruited in Uganda. 4,496 SHSs have been installed in Mali, Guinea-Bissau and Uganda. 	Implementers: Foundation Rural Energy Services Funders: ACP-EU



World Bank has partnered with the government to implement the 15 year ERT initiative to improve lives of rural households

World Bank	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Energy for Rural Transformation Phase III (ERT-3) ¹ Ongoing	Image: Wind grid Image: Wind grid	 Increase access to electricity in rural Uganda, with focus on three components: On grid access Off-grid access Institutional strengthening through impact monitoring 	 Off-grid component: Installation of solar PV systems for public institutions in rural areas Business development support Provision of credit facilities Quality standards enforcement support 	 USD 8.5 million fund to be disbursed to local banks to provide working capital financing to SHS PAYG operators 	Implementers: REA, MOWE, MOH,MOESD, UECCC, PSFU, MEMD Funders: World Bank/GEF



Add'ly, World Bank runs independent programs to advance access & create a conducive environment for private sector growth

World Bank	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Lighting Africa Campaign ¹ Ongoing	SHS	 Enable access to off- grid lighting and energy products for 250 million people across sub-Saharan Africa by 2030 	 Catalyze the market through: Market intelligence Quality assurance Access to finance Consumer education Business developme support Policy & regulation 	 Market assessment study to determine demand for solar products, market bottlenecks, & assess options for supporting the growth Consumer awareness campaigns Supporting UNBS in adopting and enforcing internationally recognized standards 2M people impacted, ~920k quality veified products sold & ~185k GHG gas emissions avoided 	Implementers: Broad global alliance – imps. varying by country Funders: World Bank / IFC



USAID's Power Africa is playing a crucial role in leading and coordinating initiatives in Uganda (1/4)

USAID / Power Africa	Target Industry	Target action	Approach	Results to date	Affiliated organizations
The Power Africa Uganda Electricity Supply Accelerator Ongoing	SHS Mini- grids On- grid	 Facilitate the increase of clean energy electricity generation and electricity access among rural and urban communities in Uganda by working with clean energy generation and access project developers to reach financial close and project commissioning, And enhance the enabling environment for clean energy investment 	 Supports generation and access projects through grants, transaction advisory support, short term technical assistance and linkages with other Power Africa partner tools 	 Organized the 2nd Project East Africa summit in collaboration with the Office of the Prime Minister Supporting REA in the promotion of the ECP* by supporting publishing/airing of public information messages Supported USEA and UNCDF effort to create solar awareness hotline Supported Mandulis Energy in technical proposal to AfDB 	Implementers: Energy and Security Group Subcontractors: NRECA International, Nexant, African Solar Designs and Konserve Advisory Services Funders: Power Africa, GE Africa



USAID's Power Africa is playing a crucial role in leading and coordinating initiatives in Uganda (2/4)

USAID / Power Africa	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Quality Assurance Framework for Mini-Grids ¹ Ongoing	∰ Mini- grids	 Address some of the root challenges of providing safe, quality, and financially viable mini-grid power systems to remote customers 	 Provide a flexible alternative to rigid top-down standards by defining: Levels of service framework Accountability and performance reporting framework 	 Provided a formalized, common standard for classifying energy consumers Facilitated aggregation of mini-grid projects & unlock private investment from data generated Supporting implementation of consumer protections, thus a better consumer service 	Implementers: NREL, DOE Funders: Power Africa, Global LEAP
Last Mile Distribution Results- Based Finance Beginning	SHS	 Incentivize solar home system companies to more rapidly expand into commercially viable last-mile markets 	Exploring results- based incentives Approach to be defined in the coming months	• Work will soon begin after approach is finally defined	Implementers: EnDev Funders: USAID



USAID's Power Africa is playing a crucial role in leading and coordinating initiatives in Uganda (3/4)

USAID / Power Africa	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Electricity Expansion and Improvement program Ongoing	SHS Mini- grids On- grid	Rapidly increase electricity access in its rural areas	 Develop 12 new master plans for all the rural service territories in Uganda Support REA to the develop a connections policy Support REA to develop an Offgrid Policy 	 The first three masterplans completed& identified over 100 mini-grid sites in only three service territories > 120,000 new connections identified within the existing distribution footprint Electricity Connections Policy developed could add 1,400,000 new connections by 2022 Connections policy & implementation plan developed Options Paper draft presented to REA and stakeholders 	Implementers: NRECA, REA Funders: Power Africa



USAID's Power Africa is playing a crucial role in leading and coordinating initiatives in Uganda (4/4)

USAID / Power Africa	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Uganda Electricity Regulatory Partnership ¹ Ongoing	∰ Mini- grids	• Support the development of a regulatory and policy framework for electricity access with focus on the role of mini-grids to address the electricity needs of rural customers	 Develop a practical guide to the regulatory treatment of mini-grids to outline the practical issues and potential decision-making tracks for regulators Implement a technical workshop on mini-grid technical, performance and interconnection guidelines to assist ERA in developing tailored technical and performance guidelines for mini-grid providers of electricity in rural service territories 	 Held technical workshop to: Examine international best practices on minigrid technical requirements (e.g. interoperability, compatibility) Develop an outline on mini-grid technical requirements, interconnection to the national grid and business models for interconnection, power quality, and service quality Developed an outline for mini-grid regulation 	Implementers: NARUC, ERA Funders: USAID / Power Africa



DFID initiatives work to increase investment in off-grid energy firms, overcome regulatory barriers & foster innovation

DFID	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Energy Africa Campaign ¹ Ongoing	т ш SHS Ш Mini- grids	 Accelerate expansion of household solar market to help bring universal electricity access in Africa forward from 2080 on current trends to 2030 	 Campaign to improve policy and support conditions to accelerate market-based SHS delivery Core tool is Energy Africa Country Compacts matched with a coordinated multi-donor support offer 	 Coordinated & signed Energy Africa Compact with Ug government and other stakeholders making commitment to address several challenges facing the SHS market Market assessment to be conducted in all countries in then campaign 	Implementers: MEMD, DFID, REA, SE4ALL, USEA, USAID / Power Africa, UNCDF, et al. Funders: DFID
Transforming Energy Access (TEA) ² Ongoing	SHS Cook stoves Bio fuels	 Address critical evidence gaps, test innovative technology applications, business models, financing, & skills development to accelerate the provision of affordable, clean energy based services to poor households & enterprises 	 Partnership with Shel Foundation to suppor private sector innovations Support Innovate UK Energy Catalyst to stimulate technology innovation Build other strategic innovation partnership 	 Shell Foundation rt created Uganda Off- Grid Energy Market Accelerator to advance off-grid access Testing P2P Solar crowding platform Scoping potential partnership with Gates Foundation on Mission Innovation 	Implementers: Shell Foundation, Innovate UK Funders: DFID

Sources: UOMA interviews & consultations, supplemented by

1. https://www.gov.uk/government/news/energy-africa-campaign; https://www.contractsfinder.service.gov.uk/Notice/1a44f944-fe22-4e77-b300-2da4fbb6068e



DFID initiatives work to increase investment in off-grid energy firms, overcome regulatory barriers & foster innovation

DFID	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Africa Clean Energy Program (ACE) Ongoing	SHS	 Catalyze a market based approach for private sector delivery of solar home system (SHS) products and services which will lead to improved energy access to people in SSA who are currently without modern energy 	 Provide TA to improve the enabling environment for mkt based approach for private sector delivery of SHS Finance businesses wanting to enter new and emerging SHS markets in SSA 	 REACT-HS awarded US\$ 7.4 million to 10 household solar co.s with 8 disbursements beginning Compact actions aimed at improving policies & regulations that facilitate a market approach to solar energy implemented in 7 countries 	Implementers: AECF, TBC, IFC, DAI Funders: DFID
Renewable Energy and Adaptation to Climate Technologies (REACT) Window, Africa Enterprise Challenge Fund Ongoing	SHS	 Incentivising private sector delivery of low cost clean energy and climate adaptation technologies to help rural beneficiaries adjust to climate change and escape poverty using grant funding to catalyse greater investments into these sectors 	 Facilitates a market driven approach to increased energy acce through off-grid renewable energy, as well as increasing resilience & adapting climate change in run areas 	 Helping to demonstrate the viability of many of the companies that have accessed commercial investment (e.g. M- al KOPA, Mobisol and Off-Grid:Electric) 	Implementers: AECF Funders: DFID



Others

Netherlands	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Milking the Sun & Harvesting the Sun ¹ Ongoing	SHS Solar agric. app	 Provide dairy and crop farmers and their households with high quality, affordable and sustainable solar lighting systems and solar powered agricultural appliances 	 Subsidy to provide farmers with access to 37,000 solar products with reliable after sales service 	 Over 10,000 systems in collaboration with lead partner Solar Now 	Implementers: Solar Now, Barefoot Power, Uganda Crane Creameries Cooperative Union & other value chain managers Funders: Government of Netherlands



UNCDF's global CleanStart program has partnered with other dev partners to provide financing to local businesses & advance access

UNCDF	Target Industry	Target action	Approach	Results to date	Affiliated organizations
UNCDF CleanStart ¹ Ongoing	Image: Share back back back back back back back back	 Supports low-income hhs income hhs transition to renewable energy Co-invests in early stage business ideas of private companies that can bring affordable clean energy to under- served markets Emphasis on the inclusion of women and youth in value chain 	 Risk capital (performance-based grant) to bring early stage business ideas to market Advisory services to address implementation bottlenecks, facilitate linkages to partnership funding opportunities Knowledge and learning in the form of research initiatives, M&E, & networking events Nationwide campaignes improve consumer awareness & protection Partnerships with government, dev partners, & other stakeholders to leverage resources & strengther sustainability & impact 	 Providing finance and business advisory services to 6 businesses under the Renewable Energy Challenge Fund- Clean cooking window Providing finance and business advisory services to 8 businesses under the Renewable Energy Challenge Fund- Solar Window With the Schatz Energy Research Center (SERC) Humboldt State With the Schatz Energy Research Center (SERC) Humboldt State University released study on Energy Access and Off- Grid Solar 	 Implementers: UNCDF Funders: RECF Uganda: Embassy of Sweden in Uganda (RECF), UNCDF, DFID Uganda CleanStart Global: Austrian Development Agency, Liechtenstein, Norad, Sida, UNCDF

BMZ has provided support to both the government and private sector to further advance access & support clean energy (1/2)

BMZ	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Promotion of Renewable Energy & Energy Efficiency program (PREEEP) ¹ Ongoing	SHS	 Promote sustainable use of energy for social economic empowerment, increased access to renewable energy, and efficient utilization of existing energy resources Focuses on three areas: Supporting clean energy strategies Mitigating climate change Promoting access to energy 	 Support the Ministry of Energy in areas of energy policy, improvement of market structures and energy efficiency. Support activities in implementation of energy programs at district level, monitoring and evaluation and mainstreaming of cross cutting issues such as gender and HIV / AIDS Work through EnDev to achieve advance access 	 Policy support: Energy programs structured in West Nile & Lango Quality management system for the planning, steering and evaluation processes of MEMD Fully operational GIS lab Market development: Capacity building through associations Awareness campaigns Licensing: Standardized licensing procedures for small- scale off-grid energy projects with REA & ERA 	Implementers: MEMD, REA, ERA Funders: BMZ ,KfW, EU



BMZ has provided support to both the government and private sector to further advance access & support clean energy (2/2)

BMZ	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Promotion of Mini- grids for Rural Electrification (Pro Mini-Grids) ¹ Ongoing	∰ Mini- grids	Promote decentralized electrification strategies such as mini-grids to support employment and economic development Develop mechanisms to support private sector capacity for installation and operation of off-grid systems	 Four components: 1. Develop off-grid strategy for the National Electrification Policy & develop methodology to identify mini-grid project locations 2. Develop mechanisms for license concession efficient tenders 3. Implement and award tenders to private mi grid concessionaires villages 4. Promote productive use in villages to raise household incomes & improve the econom feasibility of service providers' business model & tariff revenu structure 	 Created task force with REA & the Ministry to develop directive and support development of mini-grid tender mechanism Ongoing support to REA to promote development of site identification expertise 	Implementers: GIZ, MEMD,REA, ERA Funders: EU


UNDP has partnered with the government to provide sustainable energy solutions to boarding schools in off-grid areas in Uganda

UNDP	Target Industry	Target action	Approach	Results to date	Affiliated organizations
NAMA-Green Schools project ¹ Ongoing	SHS Cook stoves Bio fuels	 Provide sustainable energy solutions to boarding schools in the mainly off-grid rural areas with solar energy, efficient cook stoves, and biogas technologies 	 Creating an appropriate financing vehicle (Revolving Loan Fund) for the planned large-scale roll out of green technologies in the schools & designing new business models for schools to pay back installation costs Complementing the technologies with capacity-building & awareness trainings for companies and a Life Skills Programme for youth and local communities 	 Project has been pre-selected to receive funding by Germany and the UK of up to € 60 million to support the development phase 	Implementers UNDP, MEMD Funders: UK, Germany



AFD has partnered with local banks to finance renewable energy investments in order to reduce the carbon footprint in East Africa

AFD	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Sustainable Use of Natural Resources and Energy Finance East Africa (SUNREF) ¹ Ongoing	Bio fuels	 Developing the share of renewable energy in the energy mix in East Africa Improving energy efficiency for companies Encouraging local banks to increase lending activities towards low-carbon projects 	 Providing technical assistance to companies & banks to assist them in identifying opportunities for green investments Installation & monitoring of projects Supporting partner banks in their risk assessment approach, communication strategy & marketing in green finance 	 A cumulated commitment of > €120 million to finance green investments in East Africa (Uganda, Kenya and Tanzania) 	Implementers: AFD, Diamond Trust Bank Funders: AFD, EU-Africa Infrastructure Trust Fund



UNIDO supports the EAC's initiative aimed at refining energy policy, capacity development and knowledge management in East Africa

UNIDO	Target Industry	Target action	Approach	Results to date	Affiliated organizations
East African Centre for Renewable Energy and Energy Efficiency (EACREEE) ¹ Ongoing	 Image: SHS Image: Bio fuels Image: Minigrids 	 Create increased access of modern, affordable & reliable energy services Increased energy security in East Africa Mitigation of negative effects e.g. local pollution & greenhouse gas emissions 	 Develop & implement a coherent regional RE&EE policy framework for the EAC & facilitate its implementation on national levels Develop & execute regional programs and projects in cooperation with GEF, other partners and mobilize funding Provide co-funding for demand-driven programs and projects executed by the private and public sector or civil society in the region, etc. 	 Holding of various workshops that have culminated in the formulation of an Action Plan which outlines strategies & measures for the successful implementation of the first phase of the centre 	Implementers: EACREEE Funders: UNIDO, ADA



The Shell Foundation has launched a number of initiatives to catalyze sustainable and scalable solutions(1/2)

Market DevelopmentSHSLeverage foundations, govt, private sector, DFIs and other financiers to amplify impact and accelerate market growthMarket institutions used to tackle barriers and facilitate effective deployment of blended capitalHelp build demand through communications and market advisoryImplementer VariousMarket to amplify impact and accelerate market growth• Market institutions used to tackle barriers and facilitate effective deployment of blended capital• Help build demand through communications and market advisoryImplementer Various	Shell Foundation	Target Industry	Target action	Approach	Results to date	Affiliated organizations
 book stores book sto	Market Development Ongoing	Industry Image: SHS Image: SHS	 Leverage foundations, govt, private sector, DFIs and other financiers to amplify impact and accelerate market growth 	 Market institutions used to tackle barriers and facilitate effective deployment of blended capital to accelerate marker growth 	 Help build demand through communications and market advisory Providing learning and analysis for key themes such as last mile distribution, rural utilities & gender impact Funding for industry associations such as GOGLA, GACCC Supporting local accelerators to act as neutral market influencers such as EPD in RW and UOMA in UG Supporting innovation for market infrastructure such as impact valuation 	organizations Implementers: Various Funders: Shell Foundation



The Shell Foundation has launched a number of initiatives to catalyze sustainable and scalable solutions(2/2)

Shell Foundation	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Building an ecosystem to accelerate access to energy Ongoing	SHSImage: Shs<	 Support entrepreneurs in the off-grid sector by working with partners to provide investment, business skills and market linkages in order to scale their businesses and deepen impact on BoP 	 Provide grants, innovative financing products & technology Support development of business skills training & market linkages Provide support for development of disruptive solutions to increase the availability of energy 	 Financing and technical assistance provided to: Energy Product manufacturers and service providers that providers aimed at rural households, productive use, communities and urban populations for example energy efficiency & storage, PAYG solar, waster to energy fuels etc Market Enablers such as supply chain intermediaries, financing facilities and catalytic institutions and bodies 	Implementers: Various Funders: Shell Foundation



Philips Lighting Foundation supports youth-focused, femalefocused as well as SME training activities in Uganda

Foundation Indust	y			organizations
Village Academy Ongoing	 48 young men & women trained to be PV solar electricians by 2018 60 out-of-school Ugandan & urban refugee youth trained to be by 2018 20 of small/ medium size business owners trained in productive use of energy by 2019 At least 60% of graduates placed in employment and/or have increased income by 3Q2018 At least 50% of trainees targeted being female graduates 	 In-village trainings for youth on technical skills, sales & soft skills necessary to enter the solar industry Tailor made courses for energy companies on capacity building and soft skills Facilitating access to start-up financing, high quality solar products & mentorship on scaling for SMEs 	 Held MCE Sales Agent Training on September 2017 where 20 youth were trained as solar sales agents and equipped with stock in partnership with MCE Uganda and d.light Conducted Soroti Solar PV Training on May 2016 where 10 young men and women were trained and certified, 8 of whom found work in the solar industry in Soroti 	Implementers: Village Academy Funders: Philips Lighting Foundation



Source: UOMA interviews & consultations, supplemented by

Many development partners have partnered on initiatives to further accelerate progress towards shared access goals (1/6)

Multi-lateral	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Energizing Development (EnDev) ¹ Ongoing until 6/2019 with new phase from 7/2019 – 12/2022	SHSCook stovesOn- gridSolar lantern	 Achieve sustainable access to modern energy services for 19M people by 2019 Target for upcoming phase to be elaborated & new global targets to be defined EnDev Uganda: Increasing household access to improved cooking by 680,200 people Increasing access to energy for lighting/appliances for 157,800 people by mid-2019 Provide modern energy services for 1,100 social institutions & 1,600 SMEs 	 Business development support for local stove companies (cookstoves & solar) in production and sales & distribution Rural partner synergy & private sector development approaches for cook stoves & solar market development Implement innovative financing & distribution schemes Grid densification projects targeting no-pole connections 	 Increased access of BoP to improved cook stoves by 680,000 people > 500 rural stove artisans trained and able to sell higher number of stoves and to increase their income Increased household access to energy for lighting/electric appliances for 125,000 people to date Supported solar co.'s to increase distribution outreach with quality solar products 	Implementers: GIZ EnDev Uganda Funders: Netherlands, Germany, Norway, UK, Switzerland and Sweden

Source: UOMA interviews & consultations, supplemented by

Many development partners have partnered on initiatives to further accelerate progress towards shared access goals (2/6)

Multi-lateral	Target Industry	Target action	Approach	Results to date	Affiliated organizations
GET.invest ¹ Ongoing	Image: Wini- gridsImage: Wini- gridsImage: Wini- gridsImage: Wini- gridsImage: Wini- gridImage: Wini- gridImage: Wini- 	 Catalyze development of markets to: Promote access to energy, supporting sustainable economic growth Develop value chains, providing employment opportunities Enhance energy security and mitigate the impacts of volatile fossil fuel prices Mitigate climate change by substituting clear energy sources for fossil fuels 	 Project and Business Development support helps projects achieve readiness for & access to financing Information and matchmaking for developers and financiers on regulatory framework and opportunities Creating an enabling environment to assist regulators implement processes for private investments 	 Project Development Support 330+ applications by project developers 50+ project and business developers received advisory support 17 projects successfully assisted in accessing investment 34 national & international events with more than 4,400 participants 	Implementers: GIZ Funders: Germany, European Union, the Netherlands, Austria



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2019)

Many development partners have partnered on initiatives to further accelerate progress towards shared access goals (3/6)

Multi-lateral	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Support Uganda Solar Energy Association Ongoing	Image: Constraint of the second s	 Promote industry- led market development for off-grid Supporting USEA to have proper governance and management structure, Empower USEA to deliver services to its member services such as provision of BDS services, sales data collection to ascertain number of solar system sold and big data customer research 	 Developed annual work plan and strategy plan. Recruited and trained three full time secretariat staff. Developed toolkit on building strong associations 	 Developed handbook for solar taxation Implemented awareness campaigns in Eastern and West Nile Launched 161 IVR Solar channel on Airtel to increase awareness for solar Trained 40 technicians on installation and troubleshooting solar systems Business diagnostic for BDS support USEA sales data collection on-going (public report will be available end of June 	Implementers: UNCDF Funders: Energy Africa, DFID



Many development partners have partnered on initiatives to further accelerate progress towards shared access goals (4/6)

Multi-lateral	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Scaling Off-Grid Energy (SOGE): Grand Challenge for Development ¹ Ongoing	- ∰ Mini- grids	 Accelerate the growth of a dynamic, commercial off-grid energy market to provide clean, modern, and affordable energy access to the millions of households and businesses beyond the grid in sub- Saharan Africa 	 Platform for leading donors and investors to incentivize technological innovation, fund early stage companies, and support critical elements of the off- grid ecosystem 	 50+ companies & market enablers supported across 18 countries in sub-Saharan Africa 3.75 million expected connections \$435 million in private investment catalysed 	Implementers: USAID Funders: USAID / Power Africa, DFID / Energy Africa, Shell Foundation



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Many development partners have partnered on initiatives to further accelerate progress towards shared access goals (5/6)

Multi-lateral	Target Industry	Target action	Approach	Results to date	Affiliated organizations
Energy and Environment Partnership/ Southern and East Africa ¹ Ongoing	 ♥ ♥	 Contribute to reduction poverty by promoting inclusive and job-creating green economies, and by improving energy security in the Southern and East Africa regions while mitigating global climate change 	 Funding projects in all fields of renewable energy and energy efficiency, bridging the gap between a good idea and a bankable project Projects are selected through two funding windows from early stage to market ready projects, including last mile feasibility studies, pilots, demonstrations, commercial scale-ups, replication and rejuvenating projects 	 Providing sustainable energy and agro hubs in Kamwenge district Providing clean energy for the Ugandan dairy industry, biogas for milk cooling Providing sustainable energy services for Kitobo island 	Implementers: KPMG Finland Funders: Ministry of Foreign Affairs of Finland, DFID and The Austrian Development Agency



Many development partners have partnered on initiatives to further accelerate progress towards shared access goals (6/6)

New Deal on Energy Achieve universal Mobilizing Approval of 29 energy Implementer for Africa ¹ SHS access to energy in domestic and sector operations worth AfDB	Multi-lateral	Target Target action Industry	Multi-lateral	Approach	Results to date	Affiliated organizations
OngoingAfrica by 2025 by: africa by 2025 by: africa by 2025 by: aparty by 2025international 	New Deal on Energy for Africa ¹ Ongoing	SHSAchieve universal access to energy in Africa by 2025 by:Image: Mini- gridsIncreasing on-grid generation to add 160 GW of new capacity by 2025Image: On- 	New Deal on Energy for Africa ¹ Ongoing	 Mobilizing domestic and international capital for innovative financing in Africa's Energy sector Supporting African countries in strengthening energy policy, regulation and sector governance 	 Approval of 29 energy sector operations worth USD 1.7 billion to deliver: 546 MW of additional installed capacity of which 526 MW are from renewable energy sources 21,264 km of distribution lines 641 km of transmission lines and associated substations 7,800 public lighting units 688,950 new households/ businesses receiving electricity access 	Implementers: AfDB Funders: AfDB, Africa Energy Leaders Group, Sustainable Energy Fund for Africa, SE4ALL, UK's Energy Africa Campaign and Power Africa



ndustry	stakeholders	
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Others

Ministry & several agencies dedicated to advancing access to energy

Government body		Mandate in industry	
20%	Ministry of Energy and Minerals	 Has the overarching mandate to promote development of sustainable- use of energy and mineral resources. 	
MINISTRY OF ENERGY & MINERAL DEVELOPMENT UGANDA	Development (MEMD)	 Renewable energy department serves under this Ministry and runs a number of the programs for access both on and off the grid 	
Rural Electrification Agency (REA)	Rural Electrification	 Promotes equitable rural electrification access with special regard to marginalized communities. 	
	 Provides oversight lead on how government sponsored projects are designed and sequenced to provide appropriate energy services based on their value to advance access & economic development 		
\bigcirc	Electricity Regulatory	 Regulates the electricity supply industry and issues licenses for generation, transmission, distribution or sales of electricity, as well as ownership or operation of transmission systems 	
ELECTRICITY REGULATORY AUTHORITY	 Establishes tariff structures and investigates tariff charges, approves rates, terms, and conditions of electricity services provided by generation, transmission and distribution companies 		
ATT CA	Uganda Energy Credit	 Facilitates investments in renewable energy sector by providing innovative financing products and technical assistance to firms in the sector. 	
Capitalization Company (UEC	Capitalization Company (UECCC)	 Channels investment to projects as the administrator of Uganda Energy Capitalization Trust, the framework for pooling resources from gov't and development partners 	



Several additional government institutions are interlinked with oversight on issues affecting off-grid



There are a number of research institutions and consultants active in UG working to support the market (1/4)

Organization

PRIVATE SECTOR

Work in Uganda

• Created to enhance private sector competitiveness by providing capacity through policy advocacy and enhanced business development services

Others

- Also play a key role in implementing some government and donor projects
- Currently implementing technical capacity aspects of the Energy for Rural Transformation phase III such as empowering USEA



Your Partner in Private Sector Led Development

CENTRE FOR RESEARCH IN ENERGY AND ENERGY CONSERVATION Energy for generations

- Focuses on the thematic areas of rural electrification, energy for productive use, household energy and energy entrepreneurship
- Has two departments: testing services for product development & independent testing of cookstoves & solar, and project engineering for project implementation and consultancy



- Implemented by the Department of Electrical and Computer Engineering at Makerere University in close cooperation with The Royal Norwegian Society for Development (Norges Vel). The incubator was initially funded by Nordic Climate Facility (NCF) and now funded by NORAD
- Main focus is on entrepreneurship, improved co-operation with SMEs and technology transfer from countries outside Uganda which are all innovative project activities which makes the project idea a unique and sustainable option for development



There are a number of research institutions and consultants active in UG working to support the market (2/4)

Organization	Work in Uganda
Global Green Growth Institute	 Signed five-year working relationship with GoU to foster green economic growth implementing a planning framework with three outcomes: Mobilize financing for implementation of green growth strategy Support improved planning of secondary cities to catalyze green growth & urbanization Support govt efforts to expand electricity investing in renewable energy
NRECA International	 Partnered with REA to define the country's electrification strategy through the Uganda Accelerated Rural Electrification Program. Funded by the World Bank, developed a master electrification plan for one new electric service territory in Uganda Today, the team is on a path to lay the groundwork to produce master plans for all 13 of the country's electric service territories funded by the USAID/Power Africa
ENERGY IMPACT	 Supports businesses serving off-grid communities with a range of services form business development services, access to finance and project development for innovative models
ACCELERATING ACCESS TO ENERGY	 Supporting the implementation of a number of initiatives such as the Off-grid Refrigeration Challenge and Transforming Energy Access programs



stand-alone energy solutions as part of a larger national electrification

There are a number of research institutions and consultants active in UG working to support the market (3/4)

Organization	Work in Uganda
CCLY MOUVER	 Engages businesses, communities, institutions, and entrepreneurs to accelerate the adoption of market-based solutions that cost-effectively shift from fossil fuels to efficiency and renewables Supporting the government of Uganda to develop and implement an integrated electrification strategy to drive energy access and economic growth
Duke NCHOLAS INSTITUTE TO EXVIDENTIAL POLICY SOLITORS	 Research and policy effort that aims to address the challenges around increasing access to modern energy solutions to underserved populations around the world Supporting the development of new, disruptive tools, such as the means to evaluate electricity access through machine learning techniques applied to aerial imagery data
OFF GRID ADVISORS	 Support businesses, investors, development partners & governments globally to to identify appropriate, impactful ways to support off-grid energy access Supporting NRECA as they help the REA develop an off-grid electrification strategy for Uganda. This will involves actively engaging private sector service providers and developers to coordinate renewable energy mini-grids and

planning paradigm

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There are a number of research institutions and consultants active in UG working to support the market (4/4)

Organization	Work in Uganda
Southampton Energy for Development	 The E4D Network is run by the Sustainable Energy Research Group (SERG) at the University of Southampton. It's aim is to enable a step-change in collaborative research and project development addressing the energy needs of rural communities in developing countries In Uganda, it has installed (2) mini-grids with a capacity of 13.5 kW
Alliance for Rural Electrification Shining a Light for Progress	 The Alliance for Rural Electrification (ARE) is an international business association that promotes a sustainable renewable energy industry for the 21st century, activating markets for affordable energy services, and creating local jobs and inclusive economies. They accept members from Uganda who enjoy the benefits of advice and advocacy, knowledge and intelligence, business promotion & marketing & business creation and support
Makerere University	 Research sustainable e-waste management and next generation battery technology, with the purpose to promote critical industry advocacy and build a body of evidence to inform responsible corporate waste management programs and policies around end-of-life disposal, recycling, and repair of solar home systems.



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Global and regional networks and associations are also enabling private sector players to leverage support services (1/2)

Organization

The Voice of the Off-Grid Solar Energy Industry

Work in Uganda

 GOGLA represents over 100 global members as a neutral, independent, not-forprofit industry association. Its mission is to help its members build sustainable markets, delivering quality, affordable products and services to as many households, businesses and communities as possible across the developing world

- Their key focus areas on access to finance working on standardizing reporting metrics for PAYG, creating a conducive enabling environment by working in advocacy around key issues like tax and on socio-economic research & insights for the market more broadly
- Will be running pilot in partnership with GiZ on market database for data collection in PAYG in Uganda in 2018



- Sendea "solar entrepreneur network for decentralized energy access" is a capacity development platform for solar entrepreneurs to build their solar company and let it grow
- Their key focus is providing support to a cohort of early stage local companies with finance, technical assistance and long-tern coaching and mentorship to nurture these companies and help them grow
- In Uganda, will be carrying out business skills training, supporting productive use elements like solar irrigation and SME use and looking at the case for PV back up systems in institutions like schools and health centers



Others

Global and regional networks and associations are also enabling private sector players to leverage support services (2/2)

Organization	Work in Uganda
	 Collaborating with industry, policy-makers, government authorities, donors, and other stakeholders to advocate for optimal policies and efficient capital deployment that will benefit the mini-grid sector and the people it serves
	 Serving as the voice of the mini-grid development industry in Africa to promote the growth and sustainable development of the mini-grid sector and act as a unified focal point for stakeholders to engage the sector
	 Provide a platform that enables transparency in industry performance through comprehensive market data and analytics in order to establish, evaluate and promote key financial, business and policy solutions to overcoming the major barriers to growth for the sector





Do contact us if you have any feedback or interest in partnering:

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