

Demand-side barriers to financing for off-grid solar businesses in Uganda

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Executive summary

The Government of Uganda strives to achieve universal electricity access by 2030 and transition towards clean energy sources. As of 2019, 62% of Uganda’s population remained without access to electricity. To close this gap and achieve universal Tier-1 connectivity—the generally accepted minimum level of electrification—the Government plans to expand access with both on- and off-grid energy solutions.¹ Uganda’s Third National Development Plan emphasizes the importance of transitioning from fossil fuel to clean energy in enabling economic growth, poverty reduction, and overall societal transformation, giving further impetus for clean energy solutions.²

Off-grid solar will play a major role in closing the current electrification gap. Even with aggressive grid and mini-grid expansion, there will be a significant electricity access gap.³ Off-grid solar (OGS) presents a viable alternative given its relative cost-effectiveness for electrifying rural and dispersed populations. Over the last several years, a robust private sector has emerged to provide these solutions, and the Government has made improvements to the enabling environment that promote business growth and encourage access for hard-to-reach customers. As a result, the sector has expanded to serve approximately 19% of households and will continue to serve more customers throughout the country.⁴

The sector, however, faces a significant funding shortfall that threatens its ability to support the country’s electrification efforts. OGS has connected over 1.7 million households to date, but will need to connect an additional 530K households every year to reach universal energy access by 2030. This expansion will require an average annual investment of USD 95 million in the next three years, with the funding need further increasing in later years.⁵ Based on the historical financing patterns of existing players and expected business as usual growth in the coming years, the sector is estimated to raise between USD 9 million and USD 36 million annually, only accounting for 9% to 38% of the capital needed to achieve universal access.⁶ Existing, large companies will likely absorb most of this funding, while small companies will continue to face challenges with fundraising. The impact of Covid-19, including supply chain disruptions and drops in customer repayment, is expected to be a key barrier to achieving universal energy access, despite donors providing grants to support OGS companies and electrify healthcare facilities.⁷

Supply-side barriers limit the flow of debt, equity, and grant capital to the sector. Previous UOMA reports, such as *Accelerating Access to Local Currency Debt Finance for Solar Home System Businesses in Uganda*, addressed supply-side barriers such as local banks’ limited lending experience to the OGS sector and their perception of the sector as ‘high-risk, low-return.’ Our consultations for this paper also identified complex bank lending processes, large minimum ticket sizes, and inadequate concessionary capital designs

¹ Ministry of Energy and Mineral Development, National Electricity Strategy for Uganda Draft Report 2020

² National Planning Authority, Third National Development Plan (NDP III) 2020/21-2024/25, <https://www.health.go.ug/cause/third-national-development-plan-n4-73dpiii-2020-21-2024-25/>, [138]

³ Ministry of Energy and Mineral Development, National Electricity Strategy for Uganda Draft report 2020, [35]

⁴ SE4All and Catalyst Off Grid Advisors, Taking the Pulse 2019

⁵ SE4All and Catalyst Off Grid Advisors, Taking the Pulse 2019

⁶ This range is based on the consumer financing, inventory, and other capital expenditures needed to support the expected growth of companies selling affiliate product sales until 2023, based on historical and projected sales. This range does not include an estimation of capital expected to be raised by companies that sell non-affiliate products.

⁷ Powering Sub-Saharan Africa’s COVID-19 Response through Off-grid Energy, RTI International, <https://www.rti.org/impact/power-africa-off-grid-project-covid-19>

that could alienate small companies as key supply-side barriers. Further, equity investments have been steadily falling in the sector due to the lack of successful exits and new equity investors, restricting younger companies' ability to test business models or fund research and development for innovative products. Grant funding has also decreased, further limiting small companies' growth.⁸

While it is important to improve the capital supply, demand-side barriers—those that limit companies' capacity to raise capital—also require attention. Based on a literature review and consultations with industry stakeholders, this paper identifies the following key demand-side barriers preventing the deployment of more capital to the OGS sector:

- **Financial systems** – Small companies, particularly those with cash-based sales models, lack resources to maintain qualified finance staff or financial systems, resulting in unreliable data that can deter financiers. In addition, companies use inconsistent financial and operational metrics across the industry, which increases the cost of due diligence thereby limiting the economic viability of smaller ticket sizes small companies' access to finance.
- **Credit management** – PAYGO companies have historically seen high customer default rates given difficulties in assessing customer creditworthiness and the lack of resources to develop and implement strong credit policies, which has been further exacerbated by Covid-19. Some companies reward agents with commissions upon enrolling new customers, incentivizing them to prioritize short-term revenues over portfolio health. In light of these challenges, many investors now evaluate credit risk as a key part of due diligence and companies with an unhealthy consumer financing portfolio, or with insufficient information to determine their portfolio health, face challenges in accessing finance.
- **Management and teams** – Management teams of many local off-grid companies lack fundraising experience, access to a diverse set of investors, or an internal fundraising team, causing them to miss funding opportunities and struggle with preparing required fundraising materials. Others have objectives that are incongruent with those of early-stage investors, such as a reluctance to give up shares in their business to equity investors. These gaps can prevent companies from connecting with the right investors and successfully completing due diligence to raise growth capital.

To continue the sector's growth in Uganda, industry stakeholders must collaborate to address these demand-side barriers. Development partners, financiers, intermediaries, and OGS companies can take action, independently or through partnerships, to improve the sector's capacity to raise capital. Such initiatives, in combination with the ongoing efforts to increase the funding supply, will accelerate the sector's reach to Uganda's off-grid populations. Recommendations for each stakeholder group are as follows:

- **Development partners can design and implement innovative funding programs and vehicles to improve companies' ability to raise capital.** These programs could target businesses of varying stages of maturity, including small companies that don't typically receive funding, for example by reassessing the eligibility criteria and providing technical assistance to improve companies' investment-readiness. In addition, development partners can continue to engage with private

⁸ Lighting Global, GOGLA, Open Capital Advisors and Vivid Economics, Off-Grid Solar Market Trends Report 2020

investors to create more blended finance vehicles targeting particularly smaller companies raising early rounds of funding, to reduce the risk to commercial investors.

- **Financiers can provide tailor financial products and processes to the Ugandan market and offer capacity building support.** Developing loan products with a smaller ticket size accompanied by technical assistance can support small OGS companies to raise capital and scale operations. Financiers can partner with ecosystem players such as USEA to source a strong pipeline of OGS companies, and explore mutually-beneficial partnerships with OGS companies such as the agency banking model.
- **Intermediaries can build companies' capacity to raise capital and collaborate with stakeholders to advance the sector.** Development partners and financiers can support companies with technical assistance provided by intermediaries. Tangible investment opportunities coupled with technical assistance, such as matchmaking with seed-stage investors or small start-up loans, can enable companies to build credit history and attract larger, later-stage funding.
- **OGS companies can improve their financial management, focus on decreasing credit risk, and narrow any capacity gaps at the management level.** Companies can benefit from benefit from freely available knowledge content on financial and operational metrics, and good credit management practices.⁹ Specifically, companies can develop systems to report against key metrics that enhance transparency and accelerate due diligence processes. Given investors' increased focus on profitable growth, companies can adopt strategies and processes that reduce credit risk and improve financial management. Further, in absence of resources to maintain teams across key functions, leaders of small companies will need to develop necessary skillsets or expand the management team to raise external funding.

Though the barriers and recommendations outlined in this paper focus specifically on Uganda, they are relevant for the broader off-grid solar sector. The sector in Uganda has made major strides, evolving into a thriving market and providing electricity to millions of previously unconnected populations. It will continue to play a major role in electrification efforts over the next decade, especially if stakeholders can collectively address the demand-side barriers and unlock the capital needed to continue scaling the sector.

⁹ There are a wide variety of sources available for off-grid solar companies, including the following: UOMA, *Credit management in the SHS sector*, 2020, <https://uoma.ug/wp-content/uploads/2020/11/Download-UOMA-CMIR-Report.pdf>; FinDev Gateway, *PayGo Perform*, <https://www.findevgateway.org/paygo-perform/about-paygo-perform>; GOGLA, The World Bank Group, *Lighting Global, Key Performance Indicator Technical Guide for the Off-Grid Pay-As-You-Go Sector*; https://www.gogla.org/sites/default/files/resource_docs/wbg_kpi_011818_yp_v20interactive-comp.pdf; Power Africa, *PAYGO Financial Modeling Tool – With Sample Input*, https://www.gogla.org/sites/default/files/resource_docs/wbg_kpi_011818_yp_v20interactive-comp.pdf; GGAP, *The Box, Not the Tools: Managing Credit Risk in Asset Finance*, <https://www.cgap.org/blog/box-not-tools-managing-credit-risk-asset-finance>; CGAP, *fibr*, and *mastercard foundation*, *A Tale of Two Sisters: Microfinance Institutions and PAYGo Solar*, <https://www.cgap.org/blog/box-not-tools-managing-credit-risk-asset-finance>; Lighting Global, The World Bank, GOGLA, and CGAP, *PAYGo PERFORM Workshop: The Last Mile to KPIs 2.0*, <https://www.cgap.org/blog/box-not-tools-managing-credit-risk-asset-finance>

1. Introduction

Uganda strives to achieve universal energy access by 2030, and off-grid solar will play a critical role in achieving the goal. The Government of Uganda has set an objective to reach universal Tier-1 connectivity by 2030 and plans to increase energy access by expanding both on- and off-grid energy solutions.¹⁰ Also, Uganda's Third National Development Plan emphasizes the role of transitioning from fossil fuels to clean energy in enabling economic growth, poverty reduction and overall societal transformation.¹¹ However, as of 2019, 62% of Uganda's populations remained off-grid, and even with aggressive grid and mini-grid expansion, there will be a significant access gap.¹²

Large OGS companies account for the majority of known sales to date in Uganda.¹³ These large companies are at least partially vertically integrated, offer affordable high-quality products with PAYGO plans, and distribute through large sales networks. They have significant traction in Uganda and in some cases other regional markets. Some have successfully raised significant funding, constituting the majority of capital raised in the industry, to develop sophisticated business models. Examples include Fenix International, M-KOPA, and Solar Now.

Both large and small companies play a critical role in achieving universal energy access in Uganda. For every large solar company in Uganda, there are many more small and predominantly local companies, which account for almost 80% of sales in the overall market.¹⁴ Many of these companies operate solely in Uganda and specialize in one area of the value chain, such as last-mile distribution. The small companies have strong local market knowledge and relatively low company overheads and can therefore more flexibly and opportunistically expand geographically, including into hard-to-reach regions with poorer customers. These companies, however, have not scaled as quickly and many have been unable to raise capital to finance their growth.

Uganda's off-grid energy sector needs to almost triple its reach to achieve universal access by 2030, requiring an annual investment of USD 95 million in the next three years. Currently, OGS companies deliver electricity to 19% of Ugandan households. In order to achieve universal access by 2030, the sector will need to reach 5.3 million new connections, requiring an annual investment of USD 95 million.¹⁵ Although Uganda's OGS sector has raised USD 254 million to date, large companies have accounted for the overwhelming majority of the capital raised, while small businesses have reported significant challenges with attracting commercial investment.¹⁶

In this report, we analyze the funding shortfall in the off-grid energy sector, deep-dive into the demand-side barriers to funding, and propose recommendations for stakeholders to improve the

¹⁰ Ministry of Energy and Mineral Development, National Electricity Strategy for Uganda Draft report 2020

¹¹ National Planning Authority, Third National Development Plan (NDP III) 2020/21-2024/25, [138]

¹² Ministry of Energy and Mineral Development, National Electricity Strategy for Uganda Draft report 2020, [35]

¹³ "Known sales" refer to sales of from companies affiliated with GOGLA, IFC Lighting Global or Efficiency for Access Coalition that report sales data to GOGLA.

¹⁴ Global Distributors Collective, Last Mile distribution state of the sector report 2019,

https://infohub.practicalaction.org/bitstream/handle/11283/622044/GDC_web%20PDF_updated.pdf?sequence=8, [32]

¹⁵ SE4All and Catalyst Off Grid Advisors, Taking the Pulse 2019, [81]

¹⁶ UOMA, Market map of Off-grid energy in Uganda Market Map Uganda Off-Grid Market Accelerator, 2020, [17]

flow of funds into the industry. This report is based on literature review, an analysis of sector funding demand, and consultations with industry.

2. The off-grid energy funding gap in Uganda

Between 2021 and 2024, the Ugandan OGS sector will need an estimated annual investment of USD 95 million to achieve universal energy access by 2030.¹⁷ Grant funding will remain an important vehicle to incentivize companies to invest in new technologies, expand to remote off-grid regions, and cultivate the next generation of OGS companies to accelerate energy access. Equity financing will enable early-stage businesses to refine innovative business models, fund ongoing operational activities and growth, and facilitate access to debt.¹⁸ Debt financing will play an important role to meet working capital needs, particularly for capital-intensive PAYGO companies.¹⁹

Uganda's OGS sector, however, is projected to raise an annual investment between USD 9 million and USD 36 million in the next three years, representing only 9% to 38% of the required capital. Based on information available to UOMA, the Ugandan OGS market has absorbed an estimated investment of USD 15 million annually over the past three years. In addition, we performed a simulation based on the consumer financing, inventory, and other capital expenditures needed to support the expected growth of companies selling affiliate product sales until 2023, which suggests that the sector will raise between USD 9 million and USD 36 million.²⁰ This estimate does not include capital needed by companies selling non-affiliate products, given limited data, though they are not anticipated to require significant capital.

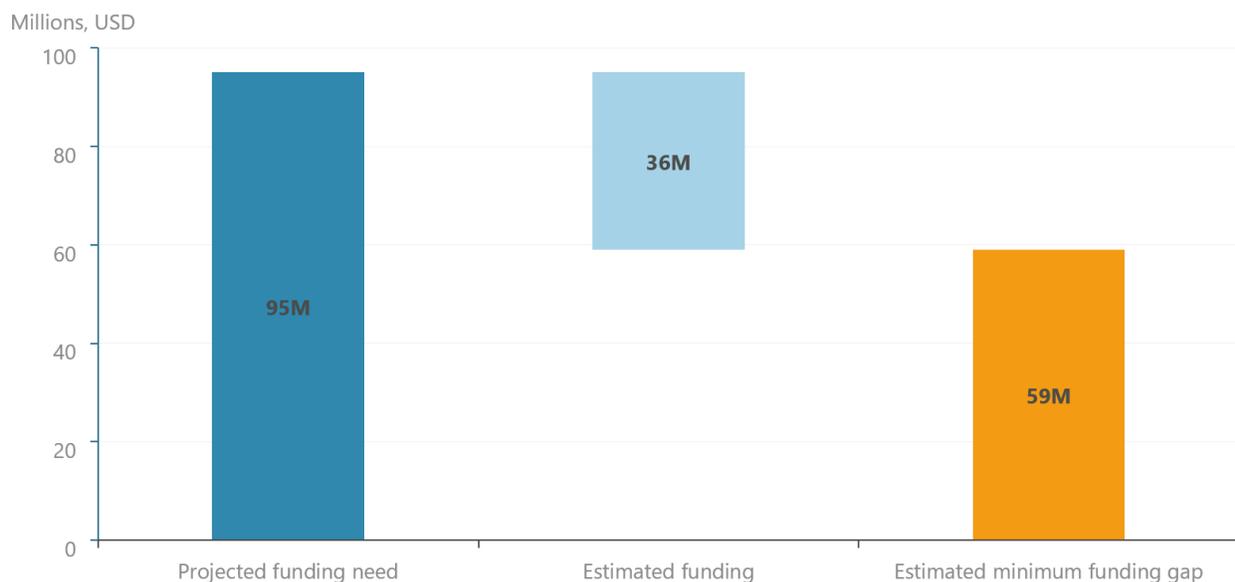
¹⁷ SE4All and Catalyst Off Grid Advisors, Taking the Pulse 2019

¹⁸ SE4All and Catalyst Off Grid Advisors, Taking the Pulse 2019

¹⁹ Lighting Global, GOGLA, Open Capital Advisors and Vivid Economics, Off-Grid Solar Market Trends Report 2020, [20]

²⁰ The term "affiliate" product refers to those products sold by companies that report sales under the GOGLA sales data collection process. There is little known about financing needs for companies that sell "non-affiliate" products.

Figure 1: Projected annual funding gap in Uganda’s OGS sector (2021-2023)



Covid-19 has further exacerbated the funding gap, particularly for companies without substantial backing from international investors. Covid-19 is threatening the survival of many OGS companies, with 85% of companies globally struggling to continue their operations as a result of customer defaults, decline in demand, supply chain disruptions, and currency volatility.²¹ In East Africa, OGS product sales fell by 11% in the first half of 2020 compared to the same period in 2019. Sales of entry-level products that target low-income customers saw the most severe drop, which is particularly concerning given that almost 13% of Ugandan households were already unable to afford the USD 3.3 per month to buy a solar lantern with PAYGO financing prior to Covid-19.²² Small, local companies are particularly vulnerable, with 30% having paused or ceased operations globally; despite donors such as Power Africa providing grants to support OGS companies and electrify healthcare facilities, there is still a need for both short-term grant funding and long-term equity, debt, and concessional loans.²³

Large companies will continue to account for most of the total capital raised. Globally, external funding has been highly concentrated in large OGS companies with non-African founders, with the top 10 companies accounting for almost 80% of total capital invested in the sector between 2012 and 2019.²⁴ This trend intensified with the impact of Covid-19, with the top three companies constituting 75% of global investments made between January and August 2020. Given that most large OGS players operate across Africa, Uganda generally reflects this industry trend, with an estimated 95% of debt investment raised by

²¹ Energizing Development, COVID-19 Energy Access Industry Barometer, https://endev.info/images/2/2a/EnDev_Energy_Access_Industry_Barometer_Summary_FINAL.pdf, [1]

²² SE4All and Catalyst Off Grid Advisors, Taking the Pulse 2019, [97]

²³ Energizing Development, COVID-19 Energy Access Industry Barometer,[1]; Powering Sub-Saharan Africa’s COVID-19 Response through Off-grid Energy, RTI International, <https://www.rti.org/impact/power-africa-off-grid-project-covid-19>

²⁴ Lighting Global, GOGLA, Open Capital Advisors and Vivid Economics, Off-Grid Solar Market Trends Report 2020, [127]

large companies.²⁵ Large companies are expected to continue raising capital to fuel their growth, but even their projected raises fall significantly short of the capital required to reach universal access.

Small companies will continue to struggle to raise significant investment, restricting their growth.

Globally, equity financing as a proportion of total funding has dropped, comprising only 16% of total funding between January and August 2020.²⁶ As a result, early-stage companies, which often struggle to access debt funding, now also have less access to equity funding needed to scale, as noted by many companies during consultations. For example, one company had to resort to crowdfunding to finance their move towards PAYGO, while another company abandoned its PAYGO offering due to lack of working capital, worsened by the plunge in the customer repayment rate during Covid-19. The few small companies that were able to raise capital were led by non-local founders who leveraged their connections with investors in developed countries.

Disparities aside, both large and small companies need more investment to achieve universal energy access by 2030. Large companies will need to continue raising large sums of money through both established funding sources and increasingly complex transactions to scale throughout the country. At the same time, it is vital that small and local companies receive investment, as they often have leaner distribution models to reach the last mile more effectively. Given the significant funding gap, there is a major need for solutions tailored to the Ugandan market that can accelerate the sector's access to capital.

3. Demand-side barriers to accessing capital

Solar companies in Uganda face both supply- and demand-side barriers to accessing capital, and stakeholders need to tackle both simultaneously to catalyze the necessary industry growth. Supply-side barriers are gaps in financial product offerings available to the sector or capacity gaps within financial institutions that prevent capital investment in the OGS sector. Demand-side barriers, on the other hand, refer to OGS companies' capacity gaps that limit their ability to raise capital, spanning areas such as financial systems, credit management, and general management. To achieve the required level of investment needed for universal electrification, both of these types of barriers must be addressed holistically.

In 2019, UOMA published *Accelerating Access to Local Currency Debt Finance for Solar Home System Businesses in Uganda*, which addressed the supply-side barriers to local currency debt funding. Despite recent improvements, the supply-side barriers identified in that report remained present according to our primary research. These are summarized here:

- **Local banks generally have limited lending experience to solar businesses.** They are still largely unfamiliar with the range of sector technologies, business models, and financing needs, and often don't include OGS as part of their broader lending strategy, which limits the availability of loans tailored to solar companies.
- **Most banks still perceive solar businesses as high-risk and low-return.** Many banks still use generic due diligence criteria to evaluate solar companies' future profitability without accounting

²⁵ UOMA, *Accelerating Access to local currency debt finance for solar home systems in Uganda 2019*, [15]

²⁶ GOGLA, *Global Off-Grid Solar Market Report: Semi Annual Sales and Impact Data, 2020*, https://www.gogla.org/sites/default/files/resource_docs/global_off_grid_solar_market_report_h1_2020.pdf

for their unique business models, which often leads to PAYGO companies being ineligible for loans despite having a healthy consumer financing portfolio.

- **Banks' lending processes are complex and lengthy.** The loan application process is time-consuming and often requires land collateral and evidence of profit, rendering many OGS companies ineligible. These difficulties combined with high interest rates discourage OGS companies from seeking capital from local banks.
- **Minimum investment amounts are too high for most Ugandan OGS companies.** The typical minimum ticket size is about USD 100K, which exceeds what most operators seek. This void for small-sized funding hinders early-stage companies from formalizing their business model and showing early traction needed to raise larger ticket sizes.
- **Concessionary capital design can alienate small companies.** Some programs have restrictive eligibility requirements that disqualify small operators, restrict certain uses of funds like inventory financing, or require businesses to source project financing.²⁷

This paper will focus on analyzing the demand-side barriers to financing and identify potential intervention opportunities. Below we present the frequently identified demand-side barriers, grouped into key topic areas around (i) Financial systems, (ii) Credit management, and (iii) Management and teams.

Financial systems

Small companies in Uganda often cannot afford full-time finance personnel or financial systems, which can result in limited and/or low-quality financial reporting. Many small businesses employ part-time accounting or finance staff, or only bring in external accountants and auditors at year end to prepare the books and comply with statutory reporting requirements. Some small companies don't have financial systems that can streamline data collection and improve data quality, and they are often unaware of free options. One operator shared that many subscription software packages only accept credit cards or PayPal, which some companies don't have. Another operator shared that many systems are cloud-based and difficult to access in remote regions with poor network connection. These factors prevent companies from building the financial management capacity needed to operate at scale and easily meet investor document requirements.

Companies that adopt a cash-based sales model are particularly susceptible to poor financial record management. Most businesses with a PAYGO model use a mobile app that records sales, repayment, and default data that investors require during a due diligence. On the other hand, operators that are primarily cash-based often rely on manual data collection and maintenance. Here, field agents keep manual records and report daily sales and submit cash upon returning to the office, where an accountant reconciles against receipts. Such a manual, cash-based process is prone to inaccuracies and potential manipulation, which makes recordkeeping more difficult. Less developed, inconsistent, or inaccurate financial records increase the time and cost required for investors to conduct due diligence, driving up minimum investment sizes to amounts that small companies cannot absorb.

Across the industry, companies use varying financial and operational metrics, making it harder for investors to assess and compare investment opportunities. Companies use different metrics across the

²⁷ SE4All and Catalyst Off Grid Advisors, Taking the Pulse 2019

sector to evaluate their performance, primarily to serve specific business purposes, for example to monitor credit risk or improve product offerings, and/or as a result of the limitations of their processes and systems. In some instances, even the same company might use different metrics over time as the business scales and the industry matures, making it difficult for investors to evaluate its performance over time. This lack of standardized metrics and industry benchmarks increases transaction costs so that small ticket sizes, often required by businesses, are not economically viable from the investor perspective.

Credit management

While the PAYGO model has increased the affordability of OGS products, it has also created operational and financial challenges for operators. The PAYGO model adds operational complexities such as maintaining agent networks or distribution partnerships, developing effective credit teams, and managing complex collections infrastructure. As a result of these challenges and also customer inexperience with credit, many PAYGO companies have struggled with high customer default rates. Impacts of Covid-19, such as mobility restrictions and decreased customer income, only further exacerbated these challenges. Investors now closely examine a target company's portfolio health and unit economics to inform their investment decisions, making it difficult for companies with high credit risk to access capital.

Operators offering consumer finance balance the difficult tension between growth and credit risk management. A company's credit policy can have a significant impact on its market position and customer experience. For example, when a PAYGO company increases its upfront deposit requirement to reduce credit risk, it can lose market share. Similarly, the duration of the payback period and the ease and speed of the credit assessment process in comparison to competitors can have a significant impact on sales. Tension often exists between credit teams, sales agents, and customer service teams, with misaligned incentives potentially leading to high default rates that discourage investors.

Sales commission structures can incentivize agents to maximize short-term revenues at the expense of a high quality consumer finance portfolio. Many companies reward sales agents upon new customer enrollment, which can incentivize agents to overlook default risk. Although some companies now defer a portion of commission until customer repayment, the majority of commission is still paid upon customer enrolment. Further, many sales agents consider their jobs as short-term, which further motivates them to maximize upfront earnings by maximizing sales, irrespective of portfolio-level impacts. With a high-risk consumer finance portfolio, companies are unable to raise the necessary finance to scale.

Quality customer data can be elusive, and difficult to leverage to assess creditworthiness. Sales agents frequently report being unable to gather quality customer data on topics such as household income, assets, and employment that can inform credit assessment. Particularly in remote regions, customers may not keep accurate financial records of their businesses or documents to verify asset ownership. Without reliable data to inform customer creditworthiness, companies are susceptible to developing a high-risk consumer finance portfolio and therefore unable to demonstrate bankability.

Small PAYGO companies often lack the resources to develop and implement credit policies. Unlike large companies with credit and data science teams that analyze customer data to forecast repayment, small companies can't afford to attract or maintain such specialized teams. Instead, some rely on local market knowledge, for example by leveraging local sales agents to judge customer creditworthiness based on

community reputation. Others sell through savings or church groups with group guarantees, or incentivize repayment by awarding free products upon full repayment. While these methods can cost-effectively reduce default risk, their informality can make it difficult for companies to demonstrate efficacy to investors and position themselves as attractive investment opportunities.

Management and teams

Management teams of small companies often lack fundraising experience and do not have the capacity to provide information required by funders. Many small companies are unfamiliar with the materials required in the due diligence process, such as business plans or financial projections, and they lack the internal capacity to develop them. Further, management teams may not have the experience to position their businesses as attractive investment targets. They often collect only the data required for audit or tax compliance, instead of the metrics that investors evaluate, such as average revenue per user, customer lifetime value, portfolio-at-risk, or specific due diligence materials such as tax clearance certificates. As a result, small companies are often unable to successfully engage with financiers.

Many smaller companies have had limited exposure to investors due to unfamiliarity with the investor landscape and burdensome due diligence requirements, among other reasons. Some have approached banks when equity would be better suited, either because the companies were unaware of other sources of capital or because entrepreneurs were hesitant to give up company ownership. Some small company executives don't even seek debt financing as they're intimidated by the loan application process and the high interest rates. Instead, they rely on savings, loans from family and friends, supplier credit, or informal money lenders. As a result, many smaller companies in Uganda do not have sufficient access to investors networks, limiting their growth opportunities.

Sourcing funding opportunities can stretch small companies' lean teams. Unlike large companies that can afford teams dedicated to fundraising, small companies often maintain teams made up of only essential functions such as sales and customer service. At times, even those staff maintain other part-time jobs, further limiting capacity. As a result, small companies are more likely to miss funding opportunities unless they're communicated through a central channel, such as the Uganda Solar Energy Association (UESA). This relative lack of internal capacity limits small companies' ability to pursue funding opportunities, contributing to the trend of large companies accounting for the majority of capital invested in the sector.

Some companies, typically smaller off-grid companies, also have objectives that are incongruent with those of investors. These can include focusing only on local opportunities and raising capital to finance specific projects rather than to fuel the company's long-term growth. These are misaligned with most early-stage investors' objectives and hinders companies' ability to raise growth capital.

4. Recommendations for stakeholders

Industry stakeholders and OGS companies all have a role in addressing the demand-side barriers needed to increase the capital raised by the sector. This section sets out recommendations for development partners, financiers, intermediaries, and OGS companies to support more companies to become investment-ready and successfully move through the capital raise process.

Development partners

Development partners can implement programs in a way that is more inclusive for small companies and that cultivates a deep and competitive market. Implementors can ensure that they work with associations such as USEA to ensure that even resource-strapped businesses without a fundraising team or relationships with development partners will learn about funding opportunities. Development partners can support entrepreneurship support organizations (ESOs) to help grant applicants, particularly the small operators, prepare required materials. Programs can also consult with small companies to learn about the challenges they faced during application and adjust the design to be more inclusive. Such efforts can help level the playing field between large and small companies and increase capital deployed in the sector.

Development programs can specifically allocate more funding to reach a wider set of OGS companies. For example, program eligibility requirements can stipulate specific turnover thresholds or require local senior management. Also, results-based financing (RBF) programs could consider targeting small operators that reach regions unserved by larger companies.²⁸ These efforts can increase the capital flow to small companies that are often at a disadvantage when competing for funding against large companies, improving the competition within the sector.

Development partners can continue to engage with private investors to create more blended finance vehicles. Blended finance can support solar operators, particularly early-stage companies, to reduce their risk profiles to commercial investors and raise larger rounds of capital. For example, the UN Capital Development Fund (UNCDF) extended a USD 250K loan as an unsecured, two-year working capital facility to Aptech Africa when the operator was struggling to raise its first round of funding. This loan allowed Aptech Africa to build a credit history and led to Stanbic Bank, a Ugandan financial institution, offering a USD 800K facility, achieving a 3.2 times leverage on the initial UNCDF facility.²⁹

²⁸ PSFU, Call for applications: Last mile Result-Based Financing scheme, <https://www.psfuganda.org/15-psfu-news/320-call-for-applications-last-mile-result-based-financing-rbf-scheme.html>

²⁹ UNCDF, Blended Finance in Action; Renewable Energy Company Case in Uganda, <https://www.uncdf.org/article/5297/blended-finance-in-action-renewable-energy-company-case-study-in-uganda>

Box 1: The need for end user subsidies to close the affordability gap

End user subsidies should be carefully implemented alongside supply-side subsidies to close the affordability gap. To date, most development funding has been deployed through supply-side subsidies that provide funding to OGS companies through funding mechanisms such as grants, concessional financing, and RBFs. While supply-side subsidies have played an important role in scaling the sector, they do not effectively incentivize companies to reach the poorest off-grid populations who cannot afford OGS products.³⁰ In addition to the USD 95 million of annual grant, equity, and debt financing, an additional USD 30 million of annual funding will be required to reduce the price of OGS products to close this affordability gap and achieve universal energy access by 2030.³¹ Development partners, the Government, and private sector players can collaborate to carefully design and implement end user subsidy programs that directly reduce the cost of OGS products to end customers, particularly to improve energy access in vulnerable communities such as humanitarian settlements, to ensure that no one is left behind.

Financiers

Financiers can support companies with pre- or post-investment support, as well as financial products tailored to the Uganda context. Financiers can support companies to effectively utilize capital to scale. An example is UNCDF's Build Fund, where it partnered with Bamboo Capital Partners to invest in and provide technical support to early-stage clean energy businesses to attract later-stage private capital.³² As another example, the Uganda Green Energy Finance Accelerator (UGEFA) facilitates bank loans ranging from USD 10K to 70K, coupled with capacity building. As the Ugandan market is smaller than some other East African markets and many small operators seek investment of below USD 50K, tailoring the investment size to this market reality while also providing technical assistance will enable more local companies to raise funding.

Commercial banks can continue to partner with ecosystem players to tap into the opportunities in the sector. For example, banks can partner with last-mile distributors through the agency banking model, where the banks extend consumer loans through solar operators' field agent network to expand their customer base while enabling rural customers to afford solar products.³³ Stanbic Bank launched an in-house accelerator to help early-stage OGS companies become investment-ready while establishing a future investment pipeline. Commercial banks will continue to be an important source of local currency financing and should continue to collaborate with ecosystem players such as USEA or UOMA to facilitate more capital into Uganda's OGS sector.

³⁰ African Clean Energy, Technical Assistance Facility, Demand-Side Subsidies in Off-Grid Solar, <https://www.ace-taf.org/wp-content/uploads/2020/09/Demand-Side-Subsidies-in-Off-Grid-Solar-A-Tool-for-Achieving-Universal-Energy-Access-and-Sustainable-Markets.pdf>

³¹ <https://www.seforall.org/system/files/2019-11/EF-2019-TP-SEforALL-w.pdf>

³² "The Build Fund: A UNCDF and Bamboo Capital Partners partnership", UNCDF Unblocking Public and Private Finance for Poor, Jan 30, 2020, <https://www.uncdf.org/article/5305/the-build-fund>

³³ "Next Billion", Agency Banking and Off-Grid Energy: Banking the Unbanked Through Solar, June 5, 2020, <https://nextbillion.net/banking-unbanked-through-off-grid-solar/>

Intermediaries

Accelerators can couple capacity building programs with start-up funding. Accelerators can amplify the impact of their investment-readiness support programs by offering start-up loans or networking events alongside early-stage investors. EnVenture offers USD 2K start-up loans and intensive capacity building support to its seed incubator participants, with potential for follow-on funding of between USD 3K and USD 10K.³⁴ Such start-up loans can serve as an important stepping stone for early-stage businesses to solidify their business model and develop a credit history to attract further commercial funding.

Neutral intermediaries can work with key industry stakeholders to build their capacity and increase funding in the sector. UOMA has worked with development partners, commercial banks, industry associations, government agencies, and OGS companies in Uganda to remove barriers to funding by building capacity through technical assistance, developing local market insights, and facilitating connections. For example, UOMA supported USEA to assess the impact of Covid-19 on the sector to determine companies' needs and helped develop the 2019 *Uganda Solar Market Report*. Neutral intermediaries can continue to identify opportunities for the industry to collaborate to close the sector's funding gap.

OGS companies

Solar companies can improve their financial management and adopt consistent performance metrics. Small companies should implement a financial management system to collect the financial and operational data needed by investors to evaluate performance. Although it is work-in-progress, companies can start to utilize the indicators developed by the PAYGO Performance, Reporting, and Measurement (PERFORM) initiative to move towards common reporting standards for the industry, increasing transparency and reducing transaction costs for future investors.³⁵

Companies can continue to develop internal processes and adopt systems to reduce credit risk. Companies can analyze customer repayment data and extend credit for higher-tier assets to those with a strong repayment history. As the investment community starts to shift their emphasis from aggressive sales growth to a profitable growth with a sustainable credit portfolio, companies can adopt strategies that will reduce credit risk and demonstrate bankability, such as increasing the upfront deposit or aligning sales agent incentives with portfolio quality.³⁶

Leaders of small companies can assess their capacity across critical functions to identify and close skill gaps. Without resources to maintain full-time staff across key functions such as accounting and fundraising, management teams of small companies need to develop versatile skillsets to raise external funding. Participating in investment-readiness programs can help the management teams to connect with relevant investors, seek appropriate types of funding, and prepare documents in advance. In addition,

³⁴ "Clean Energy Loans", EnVenture, <https://nextbillion.net/banking-unbanked-through-off-grid-solar/>

³⁵ Much more information about financial performance metrics can be found in the following paper: FinDev Gateway, PayGo PERFORM

³⁶ Much more information about credit management can be found in the following paper: UOMA, Credit management in the SHS sector, 2020

management teams can stay connected to the ecosystem by joining associations such as USEA or signing up for updates from active funders to avoid missing out on funding opportunities.

5. Conclusion

At the current pace of funding for the OGS sector, it is unlikely that Uganda will be able to achieve universal energy access by 2030. Based on past funding trends, is estimated that Uganda's OGS sector will likely raise annual funding between USD 9 million and USD 36 million in the next three years, representing only 9% to 38% of the required capital of USD 95 million annually. While increasing the supply of capital is important, the sector risks to fall short of its growth potential if demand-side barriers are not addressed.

Companies can independently tackle some demand-side barriers themselves. OGS companies, particularly the small companies, can take action to improve their internal capacity and thereby reduce transaction costs and timelines for funders. Strategies include implementing financial systems to collect critical financial and operational data, adopting consistent performance metrics across the industry, strengthening credit risk management capabilities, joining industry associations, and participating in capacity building programs.

Development partners, financiers, and intermediaries also need to accelerate their efforts, reassess their current funding approaches, and further develop local companies. Stakeholders can design and implement funding programs to be more inclusive for small companies, reduce minimum ticket sizes, provide technical assistance, and continue to collaborate across the industry to design innovative funding mechanisms that are tailored to Ugandan OGS companies' unique needs and business models. With these industry-wide efforts, Uganda will be one step closer to achieving universal energy access.