The COVID-19 impact on access to finance for local off-grid solar businesses in Uganda

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Uganda Off-Grid Energy Market Accelerator

www.uoma.ug

UOMA, founded in 2017, is a dedicated and neutral intermediary, focused on accelerating the growth of off-grid energy access in Uganda to enable universal energy access. UOMA is managed by a team of technical experts with experience across many areas of off-grid energy, finance, business, policy & regulation, and development economics.

Our work is focused on the following initiatives:

- Access to finance: Increase access to local currency debt finance for private sector actors in off-grid energy, bridging a critical working capital shortfall and currency mismatch and enabling operators to increase affordability of units.
- 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.
- Productive use technology: Support industry to test & validate productive-use technologies that can achieve economic benefits for off-grid Ugandans while growing energy demand.
- Government policy and targets: Support the public sector to create effective policies and an effective enabling environment to increase off-grid energy uptake in Uganda.
- Communication and 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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Executive Summary

Since 2010, the Government of Uganda has made significant strides towards achieving universal energy access for its growing population with the electrification rate increasing from 12% to 43% in 2018.[1] Although rural Uganda made up ~82% of the 2018 access deficit, these populations have seen more uptake progress over the last decade than urban regions.[2] Particularly, stand-alone solar solutions which make up Tier 1[3] and Tier 2 electricity access have grown from negligible to electrifying nearly 19%[4] of all Ugandan households. Moreover, these technologies present the most cost-effective solutions to accelerating access expansion for large rural populations.[5]

Prior to the Covid-19 pandemic, the latest data on achieving universal access revealed that 527 million people in Sub-Saharan Africa remained unelectrified even at a Tier 1 level.[6] The pandemic has exacerbated the situation with the number rising to 590 million people in 2020, an increase of 2% or 13 million people from 2019.[7] This is due to several underlying challenges including lack of financing options, limited grid infrastructure, and consumer affordability challenges, among others. Solar home systems (SHS) are expected to provide an estimated 5.3 million new household connections in Uganda over the 2020-2030 period, making up over 52 percent of total new connections requiring USD 1.76 billion in finance.[8] In light of the increase in the population without access to electricity, addressing this financing need will be crucial in achieving universal energy access towards Sustainable Development Goal (SDG) 7.

Although global investment trends have demonstrated resilience amidst the crisis, annual funding into the sector will need to at least double to achieve electrification targets. Funding in the global energy sector paints an optimistic picture that is backed by 2020's investments matching the previous year, grant volumes reaching a record high and the remarkable drop in concentration levels in large companies. However, a closer look at the solar home system market in Uganda reveals that Covid-19 has exacerbated demand and supply-side barriers to accessing capital, given the disruptions to business as usual. Most of Uganda's local solar companies and operators have struggled to weather the storm and faced even greater challenges accessing relief funds designed to support business resilience.[9] Post-Covid recovery will play a critical role in ensuring that the funding gap in Uganda's solar energy sector does not widen and threaten the country's electrification targets.

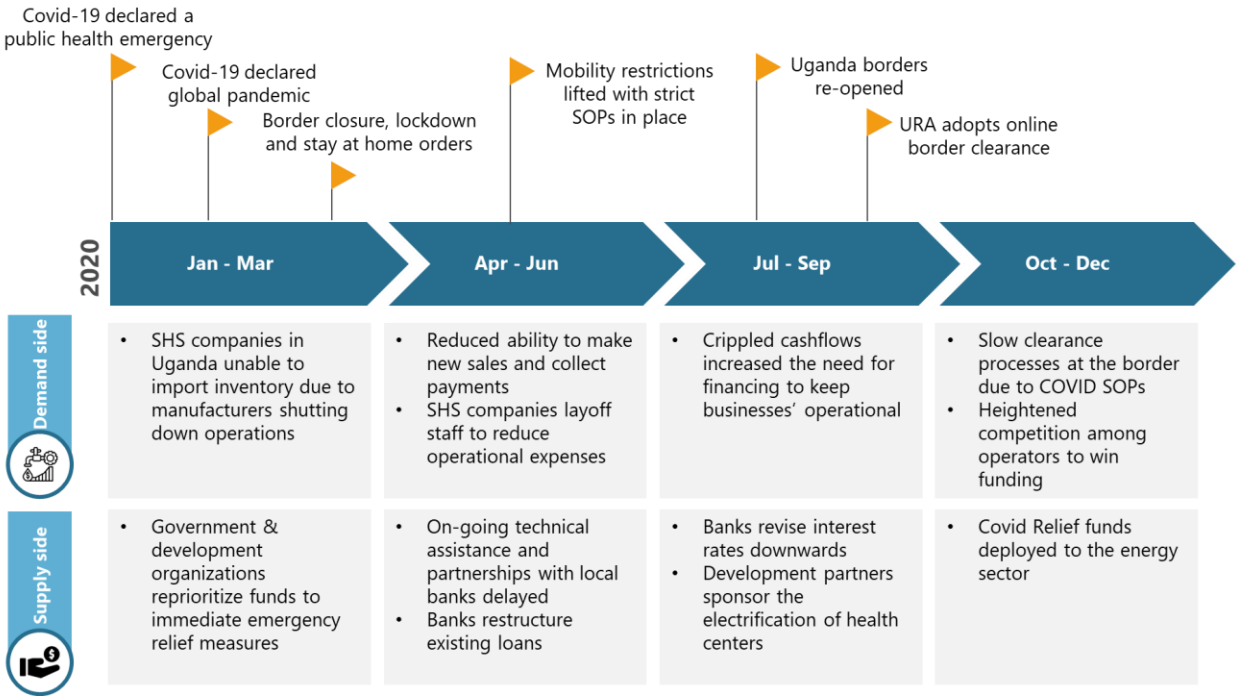
Demand-side barriers limit the company's ability to raise capital, including internal and external factors that limit their scale potential and suitability for investment. Previous UOMA reports such as *Demand-side barriers to financing for off-grid solar businesses in Uganda*[10] analyzed key demand-side barriers limiting capital deployment to the Off-Grid Solar (OGS) sector including lack of financial systems, poor credit management and inexperienced management teams. Our literature review and consultations

[1] IEA et al., Tracking SDG 7: The Energy Progress Report – Country Report, 2019 [Link]
[2] IEA et al., Tracking SDG 7: The Energy Progress Report – Country Report, 2019 [Link]
[3] Tier 1 and Tier 2 are mostly delivered by stand-alone solar access frequently in the form of single or multi-light point systems that derive their power via solar PV panels.
[4] SE4All and Catalyst Off Grid Advisors, Taking the Pulse 2019 [Link]
[5] SE4All and Catalyst Off Grid Advisors, Taking the Pulse 2019 [Link]]
[6] UN, Accelerating SDG7 Achievement in the time of Covid-19, 2020 [Link] [66]
[7] IEA, The Covid-19 crisis is reversing progress on energy in Africa, 2020 [Link]
[8] SE4All and Catalyst Off Grid Advisors, Taking the Pulse 2019 [Link]
[9] Local solar companies and operators are defined as those domiciled in Uganda with no ties to global firms, and headquartered locally
[10] UOMA, Demand-side barriers to financing for off-grid solar businesses in Uganda, 2021 [Link]

with local solar companies – specifically, *those headquartered in Uganda without parent companies operating in other countries*, identify new barriers introduced by Covid-19 as; disruptions to business operations due to lockdowns and limited cashflows due to these operational disruptions.

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*[11] 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 and industry analysis identify the supply-side barriers introduced by the Covid-19 pandemic as; disruptions to funding operations during the lockdown, decrease in investor's risk appetite and misalignment of sector needs between investors and OGS companies.

It is evident that the pandemic has been a shock to the energy sector, and as a result, the barriers introduced have evolved over time. Starting with the declaration of Covid-19 as a global public health emergency by the World Health Organization (WHO) in January 2020 to the Uganda government closing its borders and ordering full lockdowns at the height of the pandemic in March 2020. Although the government re-opened borders in September 2020, the country is still under 9 pm curfew and operations of the OGS sector are yet to return to "normal", with further lockdowns expected to be announced soon. With the prolonged curfew mandate and stay-at-home lifestyle, the sector could potentially see increased demand for lighting, mobile phone charging and entertainment appliances. However, further analysis through household surveys would need to be conducted to understand changes in demand against decrease in income levels.



[11] UOMA, Accelerating access to local currency debt finance for solar home system businesses in Uganda, 2019 [Link]

To accelerate access to finance in Uganda, OGS companies and industry stakeholders will all play a critical role in addressing the demand- and supply-side barriers. With the emergence of the global crisis, solar companies, investors, and other stakeholders have taken different actions to contribute to the sector's safe passage through the uncertain period. Such initiatives, in collaboration with the recommendations set out in this study will build momentum and increase the energy uptake in the off-grid sector. The current interventions in response to the crisis and corresponding recommendations for each stakeholder group are outlined below.

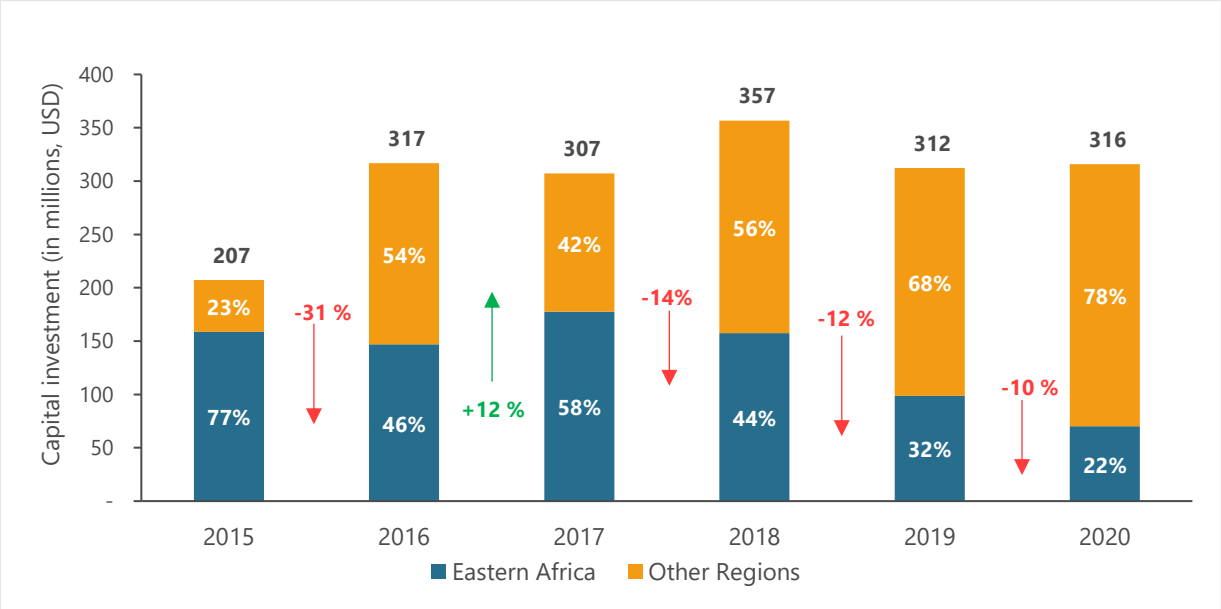
	Current interventions	Recommendations
OGS companies	• Reduced operational expenses by downsizing to core teams & leveraged social media platforms for marketing • Adopted alternate business models including prioritization of cash sales & switching from plug-n-play to modular systems to improve cashflows	• Digitize marketing & sales channels to reduce acquisition costs and increase product affordability • Prioritize PUE products to help consumers generate income and overcome the economic impacts of the crisis • Conduct capacity assessments to identify skills gaps & equip teams to pursue financing options
Development partners	• Setup Covid-19 relief funds to support recovery and business continuity • Provided technical assistance support to ensure investment readiness and reduce the rate of refusal • Funded the electrification of urban and rural health centers to support Covid-19 response	• Partner with intermediaries & conduct interactive workshops to develop tailored financing channels • Design funding programs to include follow-on support and feedback during application windows • Develop integrated approaches for planning investments that cut across sectors to accelerate post crisis recovery
Financiers and intermediaries	• Banks restructured loan repayments to offer grace periods and reduced interest rates for new loans • Some funds setup blended financing facilities to support local operators • USEA & UOMA conducted research studies and continuously support initiatives to understand the impact of Covid-19 on OGS sector	• Conduct extensive needs assessment to understand skills gap in critical functions within solar companies • Provide financial management support as a service to OGS companies unable to hire accounting teams • Collaboration between ecosystem players through referrals of OGS companies to more suitable financing options

Although the impact assessment and recommendations focus on local solar companies in Uganda, they are relevant to the broader OGS sector and overall post Covid recovery. Even under the unforeseen circumstances, the sector in Uganda has endeavored to serve its population and deliver impact to the underserved. Additionally, the global sector will need to recover as a whole; hence Uganda will continue to play a major role in helping lifting millions out of energy poverty, especially with all stakeholders tackling barriers in tandem.

Covid-19 impact on the funding gap in Uganda

Capital flows into the global OGS sector have remained stable amidst the Covid-19 pandemic, not to mention a ~2% increase in 2020's commitments.[12] According to GOGLA's investment database, the 2020 deals amounted to USD 316 million with debt and grant volumes demonstrating the most resilience. While this shows that global investments have remained robust despite the uncertainty of the global crisis, a closer look at the investment volumes in East Africa (excluding non-region-specific transactions[13]) raises some concerns. Since the region's funding flow peaked in 2017 – primarily due to early adoption of PAYGO, the pace of commitments in East Africa has steadily declined by ~12% of the total capital raised in each year (Figure 1). While further analysis is required to determine the root cause of this trend, adoption of PAYGO models in other regions, such as West Africa, is believed to be a contributing factor to the reduced growth. Moreover, the standalone Ugandan OGS sector requires an estimated annual investment of USD 95 million between 2021 and 2024[14], which is 35% above the total investment committed to East Africa in 2020. This is further demonstration that the annual funding addressed to off-grid solar companies will need to at least double to achieve universal access by 2030.

Figure 1: Investment commitments in Eastern Africa against total capital raised globally (2015-2020)



Source: Open Capital Advisors analysis of GOGLA, Investment Data.

[12] GOGLA Investment Data, 2020 [Link]
[13] "Non-region-specific" transactions refers to capital raised by companies that operate across multiple regions and do not generally raise capital on a region-by-region basis. GOGLA Investment Data, 2020 [2]
[14] SE4All and Catalyst Off Grid Advisors, Taking the Pulse: Uganda Country Study, 2019 [Link]

Funding concentration levels in large companies has dropped for the first time in five years, which indicates a positive trend for new companies looking to access capital. Since 2015, the top 10 companies accounted for ~92% of total capital invested in the global sector, which subsequently dropped to 68% in 2020.[15] While this indicates growth in the industry despite the impacts of Covid-19 to solar businesses, most of the large solar companies operate across Africa and are expected to raise more capital to fuel their growth. Moreover, in Uganda, 95% of the debt deals closed in 2019 went to large and more mature companies.[16] This trend continues to impact early-stage companies and last mile distributors that have faced even greater challenges accessing the working capital facilities required to keep their businesses operational. In fact, our consultations with some of the local operators in Uganda revealed that early-stage and small companies face a higher risk of refusal than mature and large companies with substantial backing from international investors. Therefore, it is critical to diversify commitments to more early-stage operators because these companies play a vital role in increasing energy uptake and reaching low-income customers in underserved regions.

Globally, OGS companies have had to adapt to a "new normal" due to the disruptions to supply chains, increased customer default rates and reduced sales turnover. The GIZ EnDev Covid-19 survey indicates that many operators are in financial distress, with 85% "struggling to survive" beyond more than five months.[17] Additionally, 79% of these companies were unable to access financial relief, and identified their highest priority needs as grant funding to cover operational costs, technical assistance with accessing relief funds, and business operations continuity.[18] Although this survey spanned over 613 renewable providers globally, consultations with some local solar companies showed that Uganda reflects this industry trend in the top 3 financing needs for accelerating universal access amidst the pandemic. In addition to alleviating operational cost burdens introduced by the current crisis, grant instruments are required to address the increased demand for productive use energy (PUE) products, such as electrification of rural health facilities and solar refrigerators for Covid-19 vaccine rollout. In fact, global grant volumes achieved a record-high in 2020 – a positive sign for new entrants; however, smaller companies still stand the risk of losing this coveted financing to large companies due to the high funding concentration levels.[19]

Solar companies in East Africa have experienced the most severe impacts to business activities, which has resulted in prioritization of survival before growth strategy. 35% of the East African businesses surveyed by GIZ EnDev were severely affected and forced to move to hibernation mode, with the top contributing factors being: low marketing and demand generation, low sales and cashflow constraints.[20] Moreover, Uganda reported 128,242 sales in off-grid products in the first half of 2020, resulting in a 42% decrease from the second half of 2019.[21] While sales in the second half of 2020 increased by 19%, the overall annual sales in 2020 still demonstrate a 31% drop from the previous year.[22] Therefore, it is apparent that the progress made by the sector over the last decade towards universal energy access is at risk and requires special focus. The following section explores some of the barriers introduced and exacerbated by Covid-19 that will need to be addressed to plug the funding gap in Uganda's OGS sector.

[15] GOGLA Investment Data, 2020 [4]
[16] UOMA, Market map of Off-grid energy in Uganda, 2020 [Link]
[17] GIZ Energizing Development, Covid-19 Energy Access Industry Barometer, 2020 [Link]
[18] GIZ EnDev, Covid-19 Energy Access Industry Barometer, 2020 [8]
[19] GOGLA Investment Data, 2020 [7]
[20] GIZ EnDev, Covid-19 Energy Access Industry Barometer, 2020 [70]
[21] GOGLA, "Global Off-Grid Solar Market Report Semi-Annual Sales and Impact Data, Jan-Jun 2020", 2020, [Link]
[22] GOGLA, "Global Off-Grid Solar Market Report Semi-Annual Sales and Impact Data, Jul-Dec 2020", 2020, [Link]

Barriers to accessing capital for solar operators

Since its inception, UOMA has closely assessed the barriers faced by the SHS market in Uganda and identified key initiatives for both demand and supply stakeholders to accelerate access to finance in the sector. Demand-side barriers limit the company's ability to raise capital, including internal and external factors that limit their scale potential and suitability for investment. Subsequently, supply-side barriers limit financier's ability to deploy debt, equity, and grant capital into the sector. While previous literature has identified the necessary recommendations to catalyze energy up-take, a deeper analysis on how the unprecedented pandemic has exacerbated these barriers is imperative. Specifically, this section focuses on newer market barriers introduced by Covid-19 and the shifts in financing needs of local operators.

Demand side barriers

Based on literature review and consultations with local solar companies, we have identified the key challenges impacting their ability to access the required capital. These barriers are outlined below.

Disruptions to business operations due to lockdown

Reduced mobility through lockdowns and curfews during the pandemic has reduced SHS companies' ability to make new sales and collect payments. Many of the local solar companies operating in Uganda rely on agent distribution channels for both sales and installations. With restrictions to movements at the onset of the pandemic, these sales agents and technicians were not able to make new sales, install solar systems or collect payments. These disruptions have increased customer acquisition costs and reduced the ability of some operators whose business models are cash- or contract-based to collect payments from last-mile customers in remote locations. The combination of these factors has impacted these businesses' ability to meet minimum eligibility criteria for available funding options such as annual sales turnovers, in turn reducing their attractiveness to potential investors. While restrictions to movements have since been lifted, some customers are still yet to recover from the impacts to their income streams; therefore, sales are still low and customer defaults remain high.

Most companies have had to reduce their operating expenses to adjust to the reduced demand and remain operational. These businesses took on downsizing measures primarily to address their immediate working capital challenges. Consultations with some of the local SHS operators revealed that this has been mostly through lay-offs or furloughs of non-essential staff to keep only core business personnel and downsizing office spaces to cut rent costs. Prior to Covid, small companies in Uganda faced challenges with on-boarding full-time financial personnel to streamline and manage their financial reporting processes, which continued to impact their ability to meet investment document requirements.[23] For the few operators that could afford part time financial management staff or services, these are not deemed as core employees. These layoffs and discontinuation of such services have put the financial management of local SHS businesses further at risk as it is expected to have a negative impact on the quality of financial reporting making the businesses less investable.

> *"When the pandemic hit Uganda, we initially chose to retain all our staff albeit with lower pay while applying for Covid-19 relief funds. Without much success in getting funding, we made the hard decision to lay off almost 50% of our staff. Those that were laid off, such as technicians, are now operating on a freelance and non-committal basis." – Anuel Energy*

[23] UOMA, Demand-side barriers to financing for off-grid solar businesses in Uganda, 2021 [Link]

Disruptions to supply chains has impacted most companies' ability to import their solar products. Over the years, China has become essential in the sector of manufacturing solar products by offering competitive prices for high-quality products. With the shutdown of manufacturers at the height of the pandemic, local SHS operators were unable to purchase inventory. Furthermore, this generated a backlog of merchandise at supply factories, resulting in prioritization of companies able to pay upfront, making it difficult for Ugandan local operators to acquire stock. Even with the emergence of the pandemic and as restrictions were lifted, the clearance processes at the Ugandan borders were still extremely slow with Covid-19 standard operating procedures (SOPs) in place. These supply disruptions in turn impacted revenues as companies could no longer import inventory to sell. This effectively reduced the impacted companies' ability to meet funding eligibility requirements and worked to make local SHS businesses even less attractive for investment.

Limited cashflows due to operational disruptions

The decrease in households' income has resulted in higher default rates and further impacted the health of operators' credit portfolios. PAYGO models have increased the affordability of OGS products by allowing low-income customers to make timely payments in small increments, while benefiting from the energy solution[24]. Since the PAYGO model directly correlates to the consumers' cashflows, companies have especially been affected by increased default rates from a higher number of customers unable to pay due to loss of income and an increase in expenses during the pandemic[25]. Some of the local operators consulted have had to restructure payment cycles to support customers defaulting on payments; however, this has only been effective where consumers have been able to recoup their income and catch up on payments. For those that are yet to recover and cannot comply with the revised payment schedules, the alternative is remote lockout and repossession of the solar products. While this recourse is intended to mitigate risk, repossession is expensive and often requires legal or licensing conditions to be met by local authorities and can hurt the companies' reputation in the community[26]. Hence, these higher customer default rates have increased PAYGO companies' credit risk, which is used to inform investment decisions.

Reduced cashflows have crippled SHS companies' ability to payback outstanding loans. As many operators faced sharp declines in their income from disruptions to business operations, they faced even greater challenges repaying their loan obligations to banks and other financiers. Banks worked constructively with borrowers who were severely impacted by the crisis to encourage debt re-structuring, including moratoriums of 3-6 months where necessary. For example, Bank of Uganda has provided support to protect businesses from fallout by offering mechanisms to minimize insolvency risk and waived restrictions on credit restructuring at financial institutions.[27] While this provided some relief, solar sales have not recovered fast enough for companies to meet the redefined loan obligations. This has further impacted local operators' credit portfolio and made it difficult to raise the additional funding needed for recovery.

[24] Peters et al., Keeping the Lights On: How PAYGo Solar Can Offer Customer Relief During COVID-19, 2020, Next Billion [Link]
[25] Del Ser and Mazotta, Taking the COVID-19 temperature in emerging markets, 2020, BFGA Global [Link]
[26] World Bank, Funding the Sun: New Paradigms of Financing Off-Grid Solar Companies, 2020 [Link]
[27] Bank of Uganda: Measures to Mitigate the Impact of COVID-19, 2020 [Link]

Stringent eligibility requirements have deterred small companies from pursuing the available financing options. Research shows that small companies continue to find due diligence processes daunting and often lack the capacity to develop documents required by investors, such as business plans and financial projections.[28] While operating with limited staff, these operators require additional technical assistance to prepare complete application packages, including financial metrics that not only adhere to the requirements, but also position their businesses as investment worthy. Some funds, such as PSFU's Covid-19 relief fund, have endeavored to offer this assistance; however, it is still quite an undertaking for an individual stakeholder to make this readily available for all applicants and companies looking to pursue future investment opportunities. In addition to document preparation, most financing options require assets in collateral and securities, which renders many OGS companies ineligible to accessing funding options.

"As a cash business, our main challenge with pursuing available funding has been the strict requirements for collateral, despite having strong financial systems in place" – New Sun Limited

Supply side barriers

Having discussed the impact of Covid on local solar operators, we shift our focus to assess the key challenges faced by investors in their efforts to deploy more capital into the OGS sector. The barriers outlined below were informed through literature review and consultations with some investors and intermediaries in Uganda.

Disruptions to funding operations due to lockdown

Government and financing institutions had to shift their immediate priorities to Covid-19 emergency measures, resulting in reduced funding available for energy access expansion and industry association support. DFIs, funds and government had to re-allocate resources towards fighting the spread of the virus including purchase of PPE equipment for frontline workers, deployment of safety measures in public institutions and provision of essentials like food security. In fact, research shows that among other countries, public subsidies for the electricity access programme in Uganda were put on hold.[29] Additionally, at the height of Covid-19, some banks had to reassess their portfolios and reallocate funds to higher performing sectors such as those in highly demanded PPE production to reduce the banks' overall portfolio at risk (PAR). Therefore, deprioritizing the OGS sector that has often been perceived as high risk, and making it harder for local SHS businesses to raise capital.[30] For capital that had been disbursed to the sector prior to the crisis, especially Results Based Finance (RBF) projects, investors had to incur additional transaction costs since beneficiaries needed to renegotiate terms and performance metrics. For example, some local operators that received funding from GIZ EnDev's last mile RBF pilot[31], requested additional capital and extensions to project timelines, in light of the disruptions to operations. This caused setbacks to lending initiatives and delayed on-going electrification projects.

Restricted movements and strict SOPs adversely impacted on-going technical assistance and partnerships with local banks. Most local solar companies rely on technical assistance and business development support to enhance their investment readiness. Given the strict Covid-19 SOPs, intermediaries had to re-design the interactive workshops to adhere to the new protocols, including increasing the number of available sessions and leveraging virtual platforms. As these workshops are often in collaboration with

[28] UOMA, Demand-side barriers to financing for off-grid solar businesses in Uganda, 2021 [Link]
[29] IEA (2020), The Covid-19 crisis is reversing progress on energy access in Africa, [Link]
[30] GOGLA, Increasing local financial institution investment in the off-grid solar sector, 2018 [Link]
[31] GIZ EnDev, Last-Mile Results Based Financing (RBF) pilot, 2020 [Link]

expert business advisors, this resulted in increased facilitation costs to offer multiple sessions in strict adherence to Covid-19 SOPs. Investors increasingly view technical assistance as a de-risking mechanism that is valuable for pre-investment. Moreover, more than 64% of impact investors use technical assistance (TA) along a financial instrument.[32] Hence, disruptions to technical assistance offerings caused delays in the deployment of capital to operators which is critical to recovery. Additionally, on-going negotiations with banks on partnerships to support local OGS companies were delayed due to shifting priorities and restrictions to movements. For example, Uganda Green Enterprise Finance Accelerator (UGEFA) sought to close partnership agreements with 3 local banks; however, the pandemic hindered their efforts to match local enterprises with local currency loans. As the crisis emerged, although the intermediary managed to close a partnership with one bank, the crisis inevitably extended the projected timelines to close funding for local OGS operators.

Decrease in investors' risk appetite

Weak financial systems within solar companies continue to hinder investor due diligence processes and their ability to assess investment opportunities. As introduced on the demand-side, local solar companies continue to lack the capacity to integrate streamlined financial management processes. This often means that applicants fall short of due diligence expectations, and investors receive inconsistent application packages with varying financial and performance metrics. This lack of industry-standard metrics has contributed to the continued lack of confidence in companies' data and increased investors' due diligence costs since capacity building efforts are required before capital disbursement. Furthermore, with increased failure to meet stringent eligibility criteria due to Covid impacts, such as annual revenue and equity-to-asset ratios, investors have faced even more difficulties with evaluating investment opportunities. This continued trend could indirectly result in higher funding concentrations levels in larger solar companies, since they are not perceived to be as high risk as smaller companies.

The uncertainty of financial recovery and business restoration timelines has resulted in investors taking on longer investment horizons. While it is uncertain that the OGS sector has seen the full extent of Covid impacts, solar businesses require more time and resources to recover sales operations and achieve growth plans. This uncertainty of timelines for post Covid recovery has resulted in investors taking on portfolios with longer investment horizons, hence high levels of risk. Additionally, PAYGO companies are still considered risky due to the commitment required to lending periods and repayment terms. These business models are coupled with long conversion cycles that take more than three years to convert inventory to cash[33]. Unless the OGS sector begins to experience exponential recovery in sales and revenue, investors could potentially become more risk-averse and resort to a wait-and-watch approach.

Misalignment on OGS sector needs

Misalignment on sector needs between solar companies and investors has resulted in design of funding mechanisms that are standard size. Whereas the OGS sector in Uganda is diverse with operators varying in maturity, size, product offering and financing needs, most financing programs are designed as one-size fits all. For example, some companies need small levels of investments, whose ticket sizes may not necessarily align with the strategic goals and targets of most investors. Hence smaller local operators are continuously left behind and contributes to the uneven playing field between small and large companies. While there is great focus on achieving electrification targets and creating access for the underserved, the

[32] UK AID, Survey of the impact investment markets, 2014 [Link]
[33] World Bank, Funding the Sun: New Paradigms of Financing Off-Grid Solar Companies, 2020 [Link]

need for follow-on support to ensure sustainability of the solar solutions has been neglected. Once consultation revealed that some rural health centers that were electrified in previous projects, lacked the technical and financial support for maintenance and replacement of solar parts such as batteries. Without alignment on the underlying needs of solar companies and the structure of available financing instruments, the sector may continue to grapple with the energy funding gap.

Current interventions in response to the crisis

Since early 2020, the Covid-19 pandemic has caused many disruptions to energy sector. However, as the crisis has evolved and mobility restrictions lifted, various industry players have taken different actions to contribute to the sector's safe passage through the uncertain period. This section takes a closer look at the current initiatives taken by OGS companies, development partners, financiers[34], and intermediaries to address the challenges identified above, including the lessons learned from these financing interventions.

OGS companies

Business operations workarounds

Local SHS companies at the height of the pandemic moved to quickly cut operating expenses and remain operational. This included staff layoffs and downsizing of office space as an immediate intervention to weather the Covid-19 storm as they continued to seek recovery funding. Several businesses also reported adopting innovative ways of selling to customers through the use social media platforms like Facebook and WhatsApp, as a workaround to the operational disruptions.

Business model changes

To boost resilience against the Covid-19 impacts to operations and ensure business continuity, other local SHS companies have adopted new business models. With the immediate need to free up much needed working capital, these companies opted to prioritize cash sales over PAYGO models, customize solar products to cater to the new market - increased demand for PUE, and source inventory from local suppliers. In fact, one operator revealed that the PAYGO business requires readily available inventory and working capital for market activation and customer acquisition costs. With cash tied up in inventory and the increased customer default rates, these businesses switched from plug and play to modular systems that are assembled locally with various components. This has not only enabled the operators to curb the increased cost of capital due to supply disruptions, but also, increased prioritization of business to business (B2B) segments such as health centers and corporate solutions. The case study below takes a closer look at the effect such interventions have had on increasing business resilience and growth[35].

[34] The term financiers in the context of this paper refers to banks and funds
[35] Open Capital Advisors consultations

Case study: Anuel Energy's transition to locally assembled modular systems

Anuel Energy, a locally owned solar company, addressed operating challenges faced during the pandemic by transitioning their business model from distributing plug and play systems to more customized solar solutions for its commercial and institutional clients.

Despite the continued uncertainty, the company successfully switched business models, moving away from PAYGO to prioritizing cash sales, which shored up cashflows and ensured business continuity. Furthermore, they adopted the sale of modular systems where various components are purchased and assembled locally, which addressed challenges with importing products and freed up much needed cashflows.

Anuel Energy also prioritized productive use energy (PUE) technologies, including electrification of 10 rural health centers across Uganda in May 2020 through the Sendea Association and Signify Foundation. To accelerate productive use uptake, Anuel is pursuing opportunities to provide follow-on support to these health centers through technical assistance and other solutions like solar refrigerators.

Development partners

Covid-19 relief funds

Development partners have supported the sector recovery by setting up relief funds such as the Covid-19 Economic Recovery Fund for the Off-grid and Cook Stove Sector, among others. In collaboration with Government of Uganda, GIZ EnDev mobilized the funds (EUR 1M), and Private Sector Foundation Uganda facilitated the call for applications and overall implementation. Furthermore, some development partners are supporting the sector's mid to long-term recovery by partnering with impact funds such as the Beyond the Grid Fund to set up blended risk facilities. These efforts will support much-needed energy access connections and the implementation of decentralized energy solutions in order to mitigate the impact of the virus and promote recovery. Additionally, some development partners have moved to incorporate technical assistance as an offering during the fund application windows to increase companies' eligibility for investment.

Electrification of health centers

Having established the synergies between the energy and healthcare sector, some development partners have funded and prioritized the electrification of health centers in rural Uganda. Energy considered is essential for preventing child and maternal deaths, controlling the HIV/AIDS epidemic, and combating infectious diseases and pandemics[36]; hence health centers require electricity to power life-saving equipment and vaccine cold storage. For example, a consortium of partners including USAID's Power Africa, and Sustainable Energy for All (SE4ALL) redirected their budgets to prioritize electrification for health centers[37]

[36] USAID, Power health tool kit [Link]
[37] Power Africa, SE4ALL to accelerate health facility electrification in Sub-Saharan Africa, 2020 [Link]

Case study: GIZ EnDev - Covid-19 Economic Relief Fund for the OGS and cook stove sector

GIZ EnDev mobilized a EUR 1M grant fund to support off-grid solar and cook stove companies domiciled in Uganda to survive the Covid-19 crisis and increase their resilience to external shocks.

The fund offered multiple lines of support including temporary coverage of unpaid installments for PAYGO customers, reimbursement of companies' expenditures, capital to investment into production and distribution infrastructure, as well as training costs for sector associations and other training entities. The different lines of support provided financing tailored to the companies' needs and priority areas with companies receiving appropriate amounts against each line of support, according to their application requests. Moreover, the fund was structured to prioritize businesses in financial distress and their eligibility was not impacted by negative cashflows.

PSFU as the fund implementor closely supported companies through the application process to ensure equal opportunity, and eventually disbursed grant support to 26 solar and Improved Cook Stove (ICS) companies ranging from early stage to mature.

Aside from the financial relief received, gratitude for tailored support among the beneficiaries is evident. Businesses have managed to remain operational, maintained their workers, and customers still have light through support of the relief fund. In the next couple of months, PSFU plans to carry out an impact assessment of the disbursed funds to determine the success of the intervention.

Financiers and Intermediaries

Banks

Banks have supported the recovery of the off-grid sector by restructuring existing loans extended to local operators. Some banks gave moratoriums of between 3 - 6 months to support business recovery and reduce the strain on cashflows. In addition, banks have also reduced their interest rates in line with the Bank of Uganda Central Bank Rate (CBR) which stands at 7% as of February 2021. For example, Stanbic Bank which is one of the biggest lenders to the OGS sector in Uganda has revised their interest from 18% to 15.9%.[38]

Fund Accelerators

Accelerators such as UGEFA have also supported recovery efforts by setting up blended financing facilities to support the local SHS operators. Funded by the European Union, UGEFA held a second call for applications, which closed in April 2021 and targeted green enterprises inclusive of local SHS businesses. The fund discounts loans of between UGX 36,700,000 and 367,000,000 (US$ 10,000 to US$ 100,000) to support investment needs where a third of the total loan amount is repaid directly with UGEFA grant contribution, thereby reducing total principal and interest repayment amounts[39]. Additionally, the fund also offers 6 months of technical assistance to help companies restructure their operations to build resilience to Covid-19. Areas of assistance include business planning, business modelling and negotiating with banks to restructure loans.

[38] Open Capital Advisors consultations
[39] UGEFA, Second Call for Applications, 2021 [Link]

Intermediaries

Intermediaries have supported research on the impact of the Covid-19 on the Uganda off-grid sector and published their recommendations to support decision making of the various eco-system players. For example, the Uganda Solar Energy Association (USEA) in partnership with UOMA conducted a member survey to ascertain the impact on Covid-19 on their members and to understand their most pressing financing needs at the height of the pandemic in March 2020. In an effort to alleviate financial burdens on its members, USEA has endeavored to keep companies appraised of new funding facilities, as well as those in the pipeline.

Recommendations for increasing access to finance for solar operators

Although total capital raised in the global OGS sector has increased year on year, this study has demonstrated that local solar operators report a shortage of funding, and a shift in financing needs given the global crisis. OGS companies and industry stakeholders will all play a critical role in reducing the demand- and supply-side barriers to increase availability of capital required to achieve SDG7 by 2030. This section sets out recommendations that build off the current interventions in response to the impacts of the pandemic, with an emphasis on short term actions to build industry momentum.

OGS companies

Digitization of marketing and sales channels can reduce solar companies' acquisition costs and enhance product affordability. SHS companies should move away from expensive traditional marketing channels such as television, radio, and print advertising. Instead, companies can adopt relatively cheaper and more targeted digital channels through social media platforms like Facebook, WhatsApp, and Twitter. In rural areas, incorporating blended sales channels where sales agents are connected digitally but still use a door-to-door approach could also reduce customer acquisition costs significantly. Sales agents would then leverage digital channels to collect data and onboard customers. Furthermore, as companies realize cost savings from digitization, this benefit can be extended to customers to increase affordability of OGS products. Moreover, with the uncertainty of future waves of the pandemic and neighboring countries like Kenya going into a second lock-down, it is important for SHS companies to build resilience against any potential disruptions to business operations.

Solar companies can prioritize PUE technologies to help consumers generate income and overcome the economic impacts of the crisis. Local solar companies can borrow from the examples of other operators such as M-KOPA that have expanded to selling productive use appliances, having realized the higher value they present to the end-user. For example, M-KOPA's mobile phones have helped customers such as urban farmers upgrade their earning potential and run their businesses smoothly.[40] Another example is One Lamp, whose solar powered refrigerators are expected to increase dairy farmer's income by

[40] M-KOPA's first mobile phone customer in Uganda was an urban farmer in October 2019 who has since received subsequent upgrades and generated more income

reducing spoilage resulting from a lack of cold storage.[41] Although these technologies are often expensive for the consumers and financing is required to subsidize costs[42], they can support income recovery and mitigate risks of high customer default rates. While collaboration with investors is required to accelerate the uptake of productive use appliances, solar companies can leverage their direct connection to consumers to truly understand their needs. As the demand for PUE products is established, and operators understand customers' needs, they can tailor investment outreach to acquire the range of funding instruments needed to support scale of these appliances.

Companies can conduct capacity assessments to identify skills gaps and equip teams with the skillset to pursue financing options. Although companies are now operating with limited staff and continuously lack the resources to maintain full-time finance management personnel, this can be leveraged as an opportunity to upskill and diversify the team's skillset. By developing teams with versatile skillsets, companies can ensure knowledge is shared and eliminate bottle necks to raising capital such as lack of dedicated fundraising management teams. As recommended in previous UOMA research, teams can participate in investment readiness programs, interactive workshops and training offered through member associations and intermediaries. For example, intermediaries such as UGEFA offers business development support from expert advisors in groups and one-on-one formats to build companies' financial capacity and strengthen their business models. Moreover, successful completion of this support window allows companies to gain access to financing offered through UGEFA's partner banks.

Development partners

Development partners can partner with industry intermediaries and conduct interactive workshops to develop more tailored financing channels. Since funding needs vary across solar companies, development partners can leverage umbrella intermediaries such as Uganda Solar Energy Association (USEA), who have a deep understanding of member needs, to develop more inclusive financing channels. Through interactive workshops, intermediaries and associations can play an advocate role to help investors understand the different solar business models and types of investments needed in the country context. For example, financing tiers with reduced ticket sizes for companies that require smaller investments. Although still in the design phase, World Bank's Uganda Electricity Access Scale-up Project (EASP) – in collaboration with neutral intermediaries - invited individual energy players to participate in a workshop to understand their needs across various financing mechanisms.[43] Our consultations reveal that insights from the workshop are to be leveraged in the project design phase to ensure sector needs are met. Such efforts can help mitigate risks with misalignment on sector needs.

More development programs designed to offer follow-on support during call for application windows and feedback to unsuccessful applicants. While smaller SHS companies need to address the lack of resources to raise external funding, development programs can support their efforts by incorporating follow-on support before application deadlines. Implementors of these programs can provide guidance to operators throughout the application window, including feedback on additional documents required for

[41] EEP Africa, Productive Solar Energy for Dairy Farmers, 2021 [Link]
[42] Lighting Global, The Market Opportunity for Productive Use Leveraging Solar Energy (PULSE) in Sub-Saharan Africa, 2020 [Link]
[43] Open Capital Advisors consultations

investment consideration. Development programs can be designed with longer application windows, clearly stipulating timeframes that must be met in order to receive the additional support. Furthermore, these programs can offer feedback to unsuccessful applicants and suggest improvements for future applications, allowing companies to be better positioned for future fundraising. This inclusive approach can ensure that more operators qualify for funding opportunities.

Developing integrated approaches for planning investments that cut across sectors can accelerate post crisis recovery and build resilience to future crises. As was witnessed with the Ebola outbreak in 2014[44] and the Covid-19 pandemic, these health crises required development organizations to reprioritize funding activities to immediate emergency relief measures, which reduced financing available to the energy sector. Development partners can perform further evaluation of synergies and benefits across different sector projects, such as energy, healthcare, food systems and education. Integrating such considerations and linkages in the design and implementation of financing options can contribute to building economic sustainability and boost resilience of energy sector operators. For example, with the increased electrification of health centers and powering diagnostic equipment, development partners can tailor funding mechanisms for off-grid refrigeration projects to support the rollout of the Covid-19 vaccine and equip remote clinics with much needed blood bank reserves. The solar refrigeration market in Uganda is still in its early stages of development, and further investment in research is required to improve solar refrigerator affordability and sustainability for end consumers.

Financiers and Intermediaries

Associations can conduct an extensive needs assessment to understand the skills gap in critical functions within its members. UOMA has supported USEA in conducting multiple assessments to close sector gaps, including the impact of Covid-19 on its members, and the 2019 Uganda Solar Market Report. In addition to the previous work, USEA through entities such as UOMA, can conduct an extensive post-Covid needs assessment to identify the tipping points and their prioritization to ensure sector recovery from the impacts of the pandemic. For example, consultations with local solar operators emphasized that the sector lacks skilled technical personnel for maintenance and repairs of solar parts and systems. Associations can partner with expert technical advisors to facilitate training workshops for its members to develop teams certified in repair and maintenance support. In the long-term, associations can also lobby government to expand the curriculum of technical schools to include renewable energy technologies in electronics courses. These efforts will enable local SHS companies to provide post installation support to customers and increase sustainability of OGS products.

Associations can provide financial management support as a service to OGS companies that are unable to hire full-time finance and accounting staff. This support service can be offered as an add-on to small companies implementing financial management systems and utilizing reporting standards developed by the PAYGO Performance, Reporting, and Measurement (PERFORM) initiative.[45] USEA can collaborate with other industry stakeholders, such as UOMA to provide support across its members that will enhance their internal processes and develop management information systems for document tracking and

[44] SE4All, Changes in Energy Sector Financing During COVID-19: Lessons from the Ebola Outbreak in Sierra Leone, 2020 [Link]
[45] UOMA, Demand-side barriers to financing for off-grid solar businesses in Uganda, 2021 [Link]

book-keeping. Neutral intermediaries can then develop a deeper understanding of its members' portfolio health and in turn sensitize the companies on what type of investments fit their needs. Moreover, in addition to notifying members of available funding opportunities and their application windows, this enables intermediaries to inform investors on sector needs and support alignment of investor strategic goals with those of the sector.

Collaboration between ecosystem players through referrals of solar companies to more suitable financing options. Eco-system players such as development partners and neutral intermediaries can collaborate to enable local operators stay informed on available financing options and apply for the most suitable funding. Through referral programs, financiers can refer businesses to alternative funding programs should they fail to meet eligibility criteria for current options pursued. This collaboration can also ensure that financiers develop diverse financing options that are better aligned with the vast needs of local operators. Furthermore, there is an opportunity for eco-system players to conduct joint technical assistance such as business development master classes and SME training. These synergies can serve to reduce costs and de-risk investment into local SHS operators.