



EnerGrow

State Fragility
initiative 



CASE STUDY

EnerGrow: Providing asset financing for productive use of energy products in Uganda

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Scaling up productive use of energy (PUE) appliances in low-income communities only recently connected to electricity is not easy, but it is vital to ensuring the financial viability of grid extension and mini-grid systems. This case study looks at the experience of EnerGrow and the loan-based model and business support services it provides to enable members of low-income communities to buy income-generating PUE appliances.

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1. EnerGrow overview

EnerGrow is an electrical equipment financing company that aims to help low-income communities to purchase productive use of energy (PUE) appliances and to grow “sustainable, productive, rural electricity demand in Africa through an innovative mix of productive asset financing, training, and digital ID based technology.”¹ EnerGrow was originally founded in 2017 by Riccardo Ridolfi and Natalie Bitature with the aim of addressing the viability gap seen in electrification in low-income countries, where the cost of electricity connection, consumption, and PUE products are beyond the ability of large segments of the population to pay. Aaron Leopold later replaced Natalie as a company founder.

To date, EnerGrow has focused its efforts on Uganda and intends to consolidate its operations there before potentially expanding to other countries. Uganda offers several advantages, including that UMEME, Uganda’s largest electricity utility company (which distributes around 97% of electricity in the country) is privately owned and disaggregated. This ensures less political interference in UMEME’s operations, allowing the utility to make expansion decisions based on financial viability and enabling it to be the only viable national utility company on the continent.

2. The energy cost-consumption disconnect in low-income settings

The economics of energy access are very challenging in low-income environments. Poorer households have low energy demands and, critically, low levels of energy consumption do not cover the cost of connecting these households to electricity, undermining the financial viability of extending electricity access. This is particularly the case when households comprise a sizeable majority of customers, as is common across many low-income markets, where around 85% of customers are households. In instances of low energy demand, financial viability only becomes possible if tariffs are high, which creates a negative cycle of low demand leading to low affordability.

This reality is especially challenging given the notable political pressure on governments and other energy sector actors to achieve universal energy access, including in low-income countries. National electricity utility companies face pressure to extend the national grid or put expensive off-grid generation systems in villages that have low demand for energy, while also being expected to keep tariffs low due to households’ low ability to pay. This contradiction means efforts to expand energy access are often financially unsustainable in practice.

¹ <https://ener-grow.com/>

Scaling up PUE is of vital importance in these situations as PUE users play a key role in improving the financial viability of electricity provision, even though they tend to comprise only around 15% of customers for both national grids and off-grid systems. The energy consumption of PUE users is significantly higher than that of households, and their economic activities increase their earnings, making it possible for them to afford to pay for their higher energy consumption – the higher revenues from PUE users is essential for achieving overall financial viability of electricity provision.

Driving PUE adoption in villages that have only recently been connected to electricity is challenging, however, as there is limited physical access to electronic appliances (as no local shops sell them yet) and potential users lack knowledge about different PUE products. This creates a circular issue: the lack of existing energy usage and demand for PUE appliances makes connecting these new consumers to electricity less economically viable for energy providers. These communities have low levels of PUE and, therefore, energy access efforts in these settings are rarely financially viable.

However, if PUE adoption can be stimulated early on after customers are connected to the grid or an off-grid system, these obstacles can be overcome, energy providers can achieve financial viability, and further expansions in energy access may be possible. Importantly, PUE adoption does not happen automatically after customers get connected to electricity; rather, stimulating PUE adoption requires specific efforts, particularly in low-income environments.

3. Driving PUE scale up

Although electricity providers, either on the grid or off-grid, rely heavily on PUE users for the financial viability of their systems, it is difficult and costly for them to try to stimulate PUE adoption themselves. This would necessitate vertical integration across different value chains, which is an expensive model that is not be workable in many environments.

In most instances, PUE appliance distributors or asset financing companies are better placed than electricity providers when it comes to driving PUE adoption. This division of responsibilities allows energy companies to focus on electricity generation and distribution, while PUE appliance distributors and asset financing companies can focus on driving PUE adoption – together, these complementary efforts make both initiatives more investible and financially viable. In line with this supportive approach, the key focus of EnerGrow's strategy is to improve "the profitability of electricity distribution companies by financing consumer assets that increase energy consumption, ability to pay, and economic output."² EnerGrow's experience so far has shown the company to be an effective partner to UMEME in this regard.

² <https://ener-grow.com/>

EnerGrow drives PUE adoption by partnering with utility companies and mini-grid operators, identifying entrepreneurs that require business asset financing, and providing a set of 'business in a box' solutions to customers at the cheapest possible cost. The solutions that EnerGrow offers include:

- Loans to purchase energy-utilising productive assets,
- Working capital loans, and
- Financial literacy and business training.

4. EnerGrow's business model

It is valuable to look at the entirety of EnerGrow's approach to financing PUE appliances as a business in Uganda, from the point of product selection through to building longer-term lending relationships with customers. Several key learnings emerge as lessons for other asset financing companies operating in the PUE appliance space.

4.1 Product selection

EnerGrow's asset financing provides loans to MSMEs and households for PUE appliances valued between USD 50 and USD 5,000, with loan repayment periods of between 6 months and 3 years. Their catalogue currently offers six different PUE appliances: five for business use (sewing machine, carpentry saw, maize husking machine, air compressor for metal work, refrigerator) and an electric cooker for household use. These products are shown in **Figure 1** below. Additional products may be added to their catalogue over time.

Figure 1: PUE appliances currently in EnerGrow's catalogue



In selecting these products for their catalogue, EnerGrow undertook careful market assessments to determine which products and brands were most in demand and trusted by potential customers. While much focus was on PUE appliances that support income-generating economic activities, such as carpentry or tailoring, only a few small businesses undertake these activities in each community, limiting the number of potential PUE users of these products. This is a challenge for the financial viability of PUE distributors and asset financing companies which need sufficient scale to be viable – they need to be selling thousands of products to cover their fixed costs.

Therefore, it is also important to consider household PUE appliance needs, particularly considering that 85% of customers are households. To this end, EnerGrow looked at what households were already paying for, with transport and fuel for cooking featuring prominently. They identified PUE products that could be used by households at lower cost than their existing options. Electric cookers emerged as a key product for household use, offering both time and financial savings compared to charcoal and ethanol fuel sources (with electric cookers being more expensive only than found firewood, which is increasingly hard to obtain). Additionally, electric cookers qualify for carbon credits (on the same level as electric bikes).

To assist in achieving sufficient scale of sales, EnerGrow serves communities connected to the national grid as well as those connected to off-grid systems, such as solar mini grids, as the PUE needs of small businesses and low-income households are common across both of these contexts. Information on EnerGrow's potential market is outlined in **Box 1** below.

Box 1: EnerGrow's potential market in Uganda³

Uganda's market has significant potential for increasing PUE appliance adoption:

- Uganda has 2.9 million micro, small and medium-sized enterprises (MSMEs), with more being started every day.
- These MSMEs need an average of UGX 12 million in financing, of which at least 20% is needed for assets, resulting in a market of USD 7 trillion in unserved MSME asset financing today.
- 95% of Uganda's 2 million electrified homes would financially benefit from electric cookers, representing USD 95 million in electric cooker sales and USD 380 million in carbon credits.

Looking beyond Uganda, by 2030 there will be 130 million businesses across Africa that are potential PUE appliance customers.

³ Calculations from EnerGrow.

When approaching a community for the first time, EnerGrow meets community leaders to explain who they are, what they do, and what information they wish to share with community members.



4.2 Consumer awareness efforts

EnerGrow has used different channels to raise consumer awareness through their marketing and sales activities. They have found that customers generally have a broad sense of what they want in terms of appliances, although they do not always have a more detailed understanding about what would be most useful for their business. Some PUE appliances are more well known than others. Electric cookers have been the least familiar product and EnerGrow has had to hold many demonstrations to increase consumer awareness around electric cookers.

When approaching a community for the first time, EnerGrow generally meets first with community leaders to explain who they are, what they do, and what information they wish to receive from and/or share with community members. Once sufficient trust has been built, community leaders facilitate their introduction to different community groups, chief among which have been women's groups, sports groups, farmers' associations, and religious groups. Community leaders also share relevant information with EnerGrow, including information on local businesses and whether any business owners are already in debt (and should therefore be dealt with cautiously).

Gender considerations are needed with consumer awareness activities and there is sometimes a gender divide in demand for some PUE appliances. In all cases, EnerGrow has to carefully consider who would be using the appliance and who will be paying for it, with these sometimes being different people. For example, in Uganda, a majority of small kiosks are run by women but are owned by men. If female kiosk managers want to buy a refrigerator, they may need the permission of the male kiosk owner. The loan may be made in the man's name, although the woman may be responsible for loan repayments – therefore, know-your-customer (KYC) and credit assessment due diligence must be done on both parties. The nature of the relationship between the parties may also have a bearing on the likelihood of the loan being fully repaid, making it necessary for EnerGrow to understand these relationship dynamics.

4.3 Assessing customers' creditworthiness

EnerGrow uses standard microfinance KYC tools to gather information to help them determine potential customers' creditworthiness, with a particular focus on accurately understanding levels of disposable income. This initial KYC assessment process can be quite time consuming. Over time, EnerGrow has built up a large database of detailed information on their customers and their repayment records – moving forward, this historical data will enable the increased use of algorithms and machine learning to help gauge potential customers' creditworthiness, allowing EnerGrow to be able to make informed lending decisions in a less time-consuming manner.

4.4 Structuring loans and collection to support repayment

It is in the best interests of both customers and EnerGrow that customers are able to make loan repayments on time, and EnerGrow's payment collection process is designed to most effectively support this.

Easy payment methods

Loan repayment instalments are made through mobile money or agent banking, with EnerGrow having accounts with MTN, Stanbic and Centenary to make it as easy as possible for customers to make payments. Monthly instalments can be made in single payments or broken down into a number of smaller payments, depending on customer preferences.

Loan duration flexibility

Faster repayment that reduces the duration of a loan is encouraged, with customers paying a lower overall loan cost if they are able to do this. On the other hand, EnerGrow offers some degree of flexibility on loan repayment terms and can extend the duration of loans in order to reduce monthly costs for customers if needed. However, extending the loan period results in increased interest costs for customers, leading to higher overall loan costs. This can make loan repayment defaults more likely, which is in the interests of neither the customer nor EnerGrow. This makes it a priority for EnerGrow to work with customers to find a way to enable them to pay off their loans on time. In some instances, EnerGrow has had to take possession of an asset due to loan non-performance, holding the asset (still in the name of the customer) until the customer is able to resume loan repayments. However, this is a costly process for EnerGrow and is only resorted to when circumstances require it.

Loan-based model advantages

The loan-based model that EnerGrow uses is particularly valuable as it allows the customer to take possession of the PUE appliance at the start of the loan period and use revenues generated by the PUE appliance's economic activities to contribute to loan repayments. This raises the likelihood of full loan repayment, as well as on time loan repayment. Not coincidentally, 85% of loans extended by EnerGrow have been repaid on time, which is a very good track record in the microfinance sector and is in part due to customers being able to use their asset to generate revenues during the loan period.

EnerGrow's loan-based model sets it apart from other companies in the market, some of which offer informal financing for PUE appliances but are not registered as financial institutions. Unregistered companies often use the lay-by model, where the customer makes instalment payments towards an asset but only gains possession of the asset once the full purchase price is paid, as these companies have not raised funding to enable asset financing through a loan-based model. The lay-by model has the significant disadvantage of the customer not being able to use the PUE asset to generate revenues that can contribute to paying off the asset cost, making it likely to take customers much



longer to pay for the asset and take possession of it. These companies also tend to not make necessary investments in building KYC and credit systems or strengthening staff capacity, and customers are not protected against losses arising from mismanagement.

Central importance of repayment collection

Collection of loan repayments is essential to EnerGrow's financial sustainability and the company's processes are designed to align with this. For example, sales staff receive part of their commission at the time of appliance sale and the remainder upon customers' full repayment of the loan. This system encourages staff to focus sales efforts on customers who are able to make full loan repayment and dissuades reckless lending to those who may be unable to repay their loans.

Importantly, it also motivates staff to be diligent in maintaining relationships with customers, reminding customers of upcoming repayment obligations ahead of time (thereby giving customers sufficient time to ensure that they're able to make their instalment payments on time) and incentivising staff to be solution-oriented in instances where customers are struggling to meet their repayment obligations on time.

4.5 Procurement and supply chain

There are only a few tailors, carpenters, and other small businesses within each of the communities that EnerGrow serves, resulting in limited demand for some of the PUE appliances in EnerGrow's catalogue. As a result, it is easiest to source these appliances from local retailers, who allow purchase of PUE appliances in small volumes (compared to overseas suppliers/manufacturers who may impose (quite high) minimum quantity requirements on orders). The PUE appliances in greater demand, such as refrigerators and electric cookers, can be purchased by EnerGrow in larger volumes, but procurement from local suppliers remains the best approach while market demand continues to grow.

Another advantage of procuring from local retailers is that it enables EnerGrow to use brands available in the local market and which communities may already have some familiarity with and trust in. Information on brands trusted by target communities was gathered during EnerGrow's market assessments, and EnerGrow also factors in which brands offer warranties and repair and replacement policies, to ensure that customers are protected in the event that their appliances stop working properly.

If issues arise with appliances, return, repair, and replacement are possible. Appliances that do not work as well as customers had anticipated can be returned and customers can stop paying the loan. All products are covered by warranties that last at least for the duration of the loan – this enables repair or replacement of products that stop working while being used properly.

However, it can be complex and costly for appliances to be transported from remote, rural areas to Kampala for repair, necessitating that EnerGrow consider more affordable alternatives. This could include EnerGrow undertaking repairs themselves, after providing basic technical training to their staff to enable them to deal with the most common technical issues, which often arise from the appliance being used in an improper manner and can be resolved relatively easily. It could also make economic sense to train local technicians to provide repair services in some areas. Should EnerGrow staff or local technicians undertake repairs, this would most likely void suppliers' warranties, but it may nonetheless be the best way to ensure quick and affordable repair services for customers.

4.6 Business support services

An innovative aspect of EnerGrow's package is that they offer business training as a mandatory part of their appliance loan. This includes training on basic bookkeeping, micro marketing, customer service, and inventory management. EnerGrow has found this business support to be integral to building trust with customers and ensuring that they are able to effectively use their PUE appliances to benefit their small businesses. Taking on debt is a scary step for low-income individuals, who fear buying the wrong appliance or the appliance breaking or not working, and trust and support services are needed to ease their loan experience and make it successful. Improved bookkeeping skills strengthens the management of small businesses and raises entrepreneurs' confidence around taking on debt for PUE appliance purchases. EnerGrow now reaches more than 4,000 small businesses in Uganda through their training.

This business training is delivered in-house by EnerGrow, with incumbent staff training new staff on how to deliver business support trainings. Business trainings for customers have been done in person to date, although efforts are underway to hybridise the training in order to lower cost of delivery and to allow customers to have the digital resources and tools for ongoing use and reference purposes.

4.7 Longer-term lending relationships

EnerGrow aims to have repeat business with their customers, seeing themselves as a long-term partner to help customers grow their business over time, rather than being limited to a single loan arrangement. Once a customer's previous loan has been repaid, they can apply for a further loan for another appliance, enabling them to continue to expand their economic activities. Additionally, customers who successfully pay off their first loan are able to subsequently apply for a working capital loan from EnerGrow, using the asset that they purchased through their earlier loan as collateral for the working capital loan. This gives customers access to vital working capital to grow their businesses, which tends to otherwise be difficult and expensive to access in Uganda.

This repeat business raises the customer lifetime value (being the total revenue EnerGrow can reasonably expect from a single customer throughout their business relationship) and is equally important for EnerGrow as it enables them to do more business with trusted customers, thereby increasing its own business activities over time. This is critical as scaling operations is the key driver to achieving financial sustainability and profitability.

5. EnerGrow's impact

The effectiveness of EnerGrow's 'business in a box' approach can be seen in the impact the company has achieved to date. EnerGrow customers have increased their income by 67% on average, and 400% more electricity is being consumed in the communities they serve compared to six months before they got access to electricity and PUE appliances.

The significance of these changes cannot be understated. They have had tangible positive spillover effects on the local economy, with customers having higher incomes and with their growing businesses creating more job opportunities, and communities benefitting from more goods and services being available locally. An example of how customers have benefitted from EnerGrow's activities is included in **Box 2** below. Additionally, by increasing energy demand and consumption in the communities they serve, as well as raising customers' willingness and ability to pay for energy, EnerGrow also supports UMEME's efforts to expand energy access in Uganda.

Box 2: Customer impact example: Brian's story

Brian is a juice business owner who approached EnerGrow for a loan when he wanted to purchase a second juice machine in order to increase the variety of juices he sold from his small store. It has been easy for him to manage the loan he received from EnerGrow: repayments can be made through EnerGrow's app, saving the time and cost of travel to the nearest bank, and the app also makes it easy for him to track how much he has paid towards his loan and how much still remains outstanding.

The juice machine that he purchased with asset financing from EnerGrow has made a big difference to his business. He's been able to increase his sales by 80%, which has allowed him to make his monthly loan repayments and even to buy a small plot of land for his family. The juice machine uses less electricity than older models but, still, the additional juice machine has increased his electricity consumption. However, this has not been an issue for Brian as the new juice machine has generated more than enough revenue to cover his higher electricity consumption.

When he has finished paying off the juice machine loan, Brian plans to get another loan from EnerGrow to purchase an ice-cream machine or a refrigerator, to respond to customer demand for cold and perishable goods such as sodas, yoghurt, and fruit. If Brian is able to increase the variety and volume of goods he sells, he's certain his business would become even more profitable. As he considers his next PUE appliance purchase, Brian is able to find out more about the possible options using EnerGrow's app, which includes information on all products in their catalogue.

6. Key lessons

There are several key lessons that EnerGrow has learned from their experience providing asset financing for PUE products in Uganda, including:

- 1. Thriving customers are good for EnerGrow's business.** Customers who are able to repay loans on time and undertake further loans from EnerGrow are vital for EnerGrow's business success. This means supporting customers with more than just asset financing – it means supporting their business operations and growth more broadly, including through strengthening their bookkeeping and inventory management, extending working capital loans (when customers qualify), and allowing flexibility on loan repayment periods when necessary. EnerGrow has found that customers who feel supported and have been empowered by EnerGrow are more likely – and more able – to ensure they meet their loan obligations on time. In turn, EnerGrow benefits from being able to do repeat business with creditworthy customers.
- 2. It is important to hire and effectively motivate solution-oriented staff.** Hiring staff with a growth mindset and the ability to work constructively with customers to ensure they are able to make their loan repayments on time has been critical for EnerGrow. Similarly, developing internal systems that incentivise staff to support customers on an ongoing basis and to actively manage payment collections has been necessary to align company and staff interests.
- 3. Asset financing companies have a strong need for core funding and experimentation financing.** Most experimentation financing is extended to technology companies for research and development activities, but asset financing companies and PUE distributors also need financing that allows them to, for example, test different financing approaches or different ways to ensure prompt repair of appliances for customers. Core funding that supports asset financing companies and PUE distributors to scale is also vital. While results-based financing is becoming more common, it works well mainly in semi-mature markets and it favours established companies with the resources to front initial costs – this generally excludes local companies and those aiming to enter hard-to-reach markets, where costs of expansion are high.
- 4. Empathy should be a core value.** EnerGrow strives to be a profitable business that also has a heart and soul. Empathy is a core company value and must be kept in front of mind as the company works with low-income people every day. Poor people fear debt and making the wrong decisions, and building high-trust relationships with frequent touch points between customers and EnerGrow staff is key to ensure smooth and successful loan repayment arrangements.



EnerGrow

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