End User Subsidies Lab

Innovative Company Models to Increase Affordability by Subsidizing End User Prices

THE WEBINAR WILL START SHORTLY

HOW TO TAKE PART

- Use the ‘raise hand’ feature and once permitted, unmute your microphone and speak OR type your question in the chat thread
- Feel free to target your questions to a particular panelist
- Please note that the session will be recorded and shared afterwards
- Experiencing problems? Please notify us via the chat function, shown on the bottom of your screen

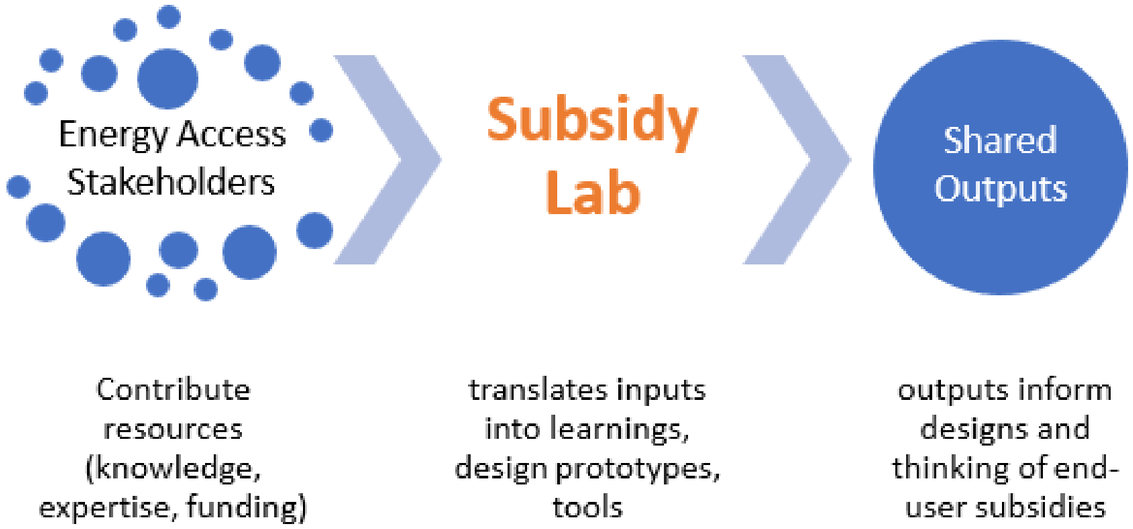
THE END USER SUBSIDY LAB

Standalone off-grid solar solutions have proved to be the most viable least cost approach to electrify poor off grid communities, but affordability for the lowest income communities is a core issue.

It is increasingly clear that we need to bridge this ‘affordability gap’, and end-user subsidies, which directly reduce costs for consumers, will play a key role.

The End User Subsidies Lab initiated by GOGLA, ESMAP/Lighting Global, Africa Clean Energy (ACE) and EnDev seeks to **promote the uptake of carefully and well-informed end user subsidies by:**

- Pooling knowledge, resources and expertise from all stakeholders interested in participating
- Convening experts and practitioners to share their experience and knowledge
- Testing smart subsidy prototypes



Innovative Company Models to Increase Affordability by Subsidizing End User Prices

The objective of this webinar is to look beyond public or development partner end user subsidy models such as RBFs to explore innovations by the private sector to reduce product pricing or total costs of ownership for end users. This webinar will:

- Provide case studies on end user subsidy innovations from OGS companies currently deployed in the market.
- Provide learning on how innovation models from companies are implemented? What benefits, challenges and lessons have been observed so far?
- Receive recommendations on possible enabling environment mechanisms required to expand or increase the effectiveness of these private sector-initiated models from the case studies.

AGENDA

Time	Agenda item	Lead	Details
15:00	Introduction	Patrick Tonui, Head of Policy & Regional Strategy/ Collin Gumbu, Policy Manager - GOGLA	Introduction to the Subsidy Lab and Webinar
15:10	Case Study 1	SunnyMoney	Subsidy as a Business Model
15:25	Case Study 2	Engie Energy Access	Subsidy Price Testing in Uganda
15:40	Facilitated Q&A	Patrick Tonui, Head of Policy & Regional Strategy - GOGLA	Discussions for all
16:20	Closing	Patrick Tonui, Head of Policy & Regional Strategy - GOGLA	Webinar wrap-up and next steps

END-USER SUBSIDIES

A PROFITABLE MODEL TO REACH ALL?

SolarAid

590 MILLION PEOPLE WITH NO ACCESS TO ELECTRICITY IN SUB-SAHARAN AFRICA

SolarAid

SOLARAID'S MISSION

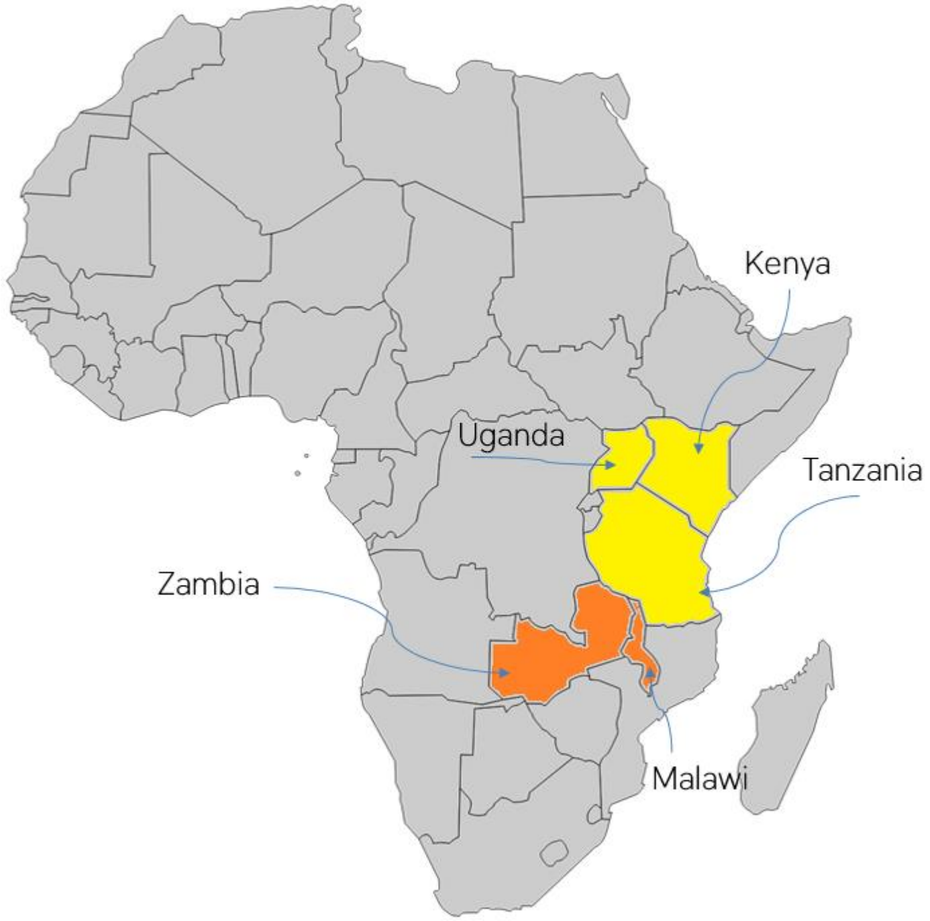
to light up every home, school and clinic in Africa by 2030, using safe, clean, solar power.

No one should be left in the dark.

SolarAid

SOLARAID TO DATE

- SolarAid was founded in 2006
- Founded the social enterprise SunnyMoney in 2008
- 11.9 million people reached with clean and affordable energy
- Sold over 2.2 million solar products across five countries
- Played a leading role in the catalysation of the Kenya and Tanzania solar markets
- Renewed focus on ‘leaving no one behind’ while retaining our core business focus
- Direct focus in Malawi and Zambia and a partnership approach across the continent.



HOW TO REACH THE LAST MILE

Effective last mile distribution overcomes three main barriers:

1. Awareness

2. Access

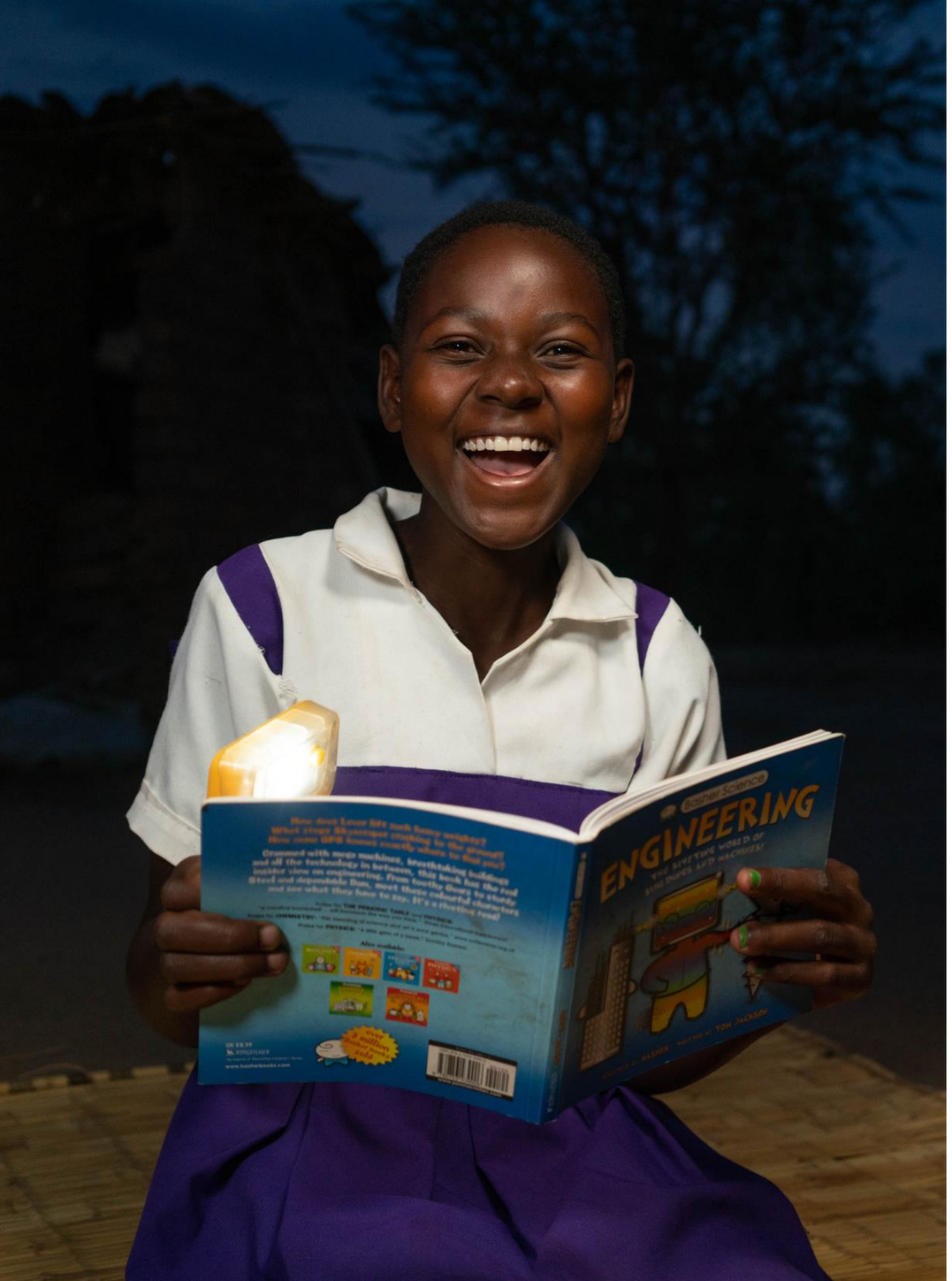
3. Affordability

We have overcome the first two but the affordability barrier remains.

End-user subsidies are needed.

END-USER SUBSIDIES

to leave no one behind and achieve market maturity



END-USER SUBSIDIES

WHY AND WHAT?

End-user subsidies: An end-user subsidy is one that reduces the cost of a product or service to the customer to specifically address the issue of affordability.

We are running two open-source pilots concurrently:

1. Subsidised pico-solar as a loss-leader.

2. Subsidised ‘energy-as-a-service’ model with SHS.

Today, we will discuss the former…

PICO-SOLAR AS A LOSS LEADER

OBJECTIVES

1. Identify, understand and reach the ‘non-commercial market’ in its entirety. 100% access.

2. Form a best practice implementation model by proving the best mechanisms for delivery, price points and maximising impact and commercial value.

3. Understand the minimum level of end-user subsidies (and supply side subsidies) required to reach everyone.

4. Partner with key sector stakeholders in Zambia, and across sub-Saharan Africa, to ensure large scale adoption following a successful pilot.

PICO-SOLAR AS A LOSS LEADER

THE MODEL

- Delivered through our Schools Campaign model in partnership with the Ministry of Education.
- Universal subsidies implemented on a geographical basis.
- Well marketed ‘promotional discount’ or ‘subsidy’ communicated to customers.
- Subsidised pico-solar products, in the first instance, rather than SHS.
- Length of subsidy dictated by uptake which leads to expansion of the product portfolio.
- Customer and non-customer research – reach, impact and quality of service.
- Business modelling – measuring the journey to profitability and concluding level of end-user and supply side subsidy needed.

PICO-SOLAR AS A LOSS LEADER VS SHS SUBSIDIES

We are testing a subsidised SHS model alongside this. Distinguishing features of this model are:

- Greatly reducing the level of end-user subsidies required and, therefore, reducing the burden on government or donors.
- Recognising the impact of pico-solar products.
- Instant affordable energy access with a pathway to Tier 1 which is conducive to business growth and market maturity.

PICO-SOLAR AS A LOSS LEADER

ENDGAME

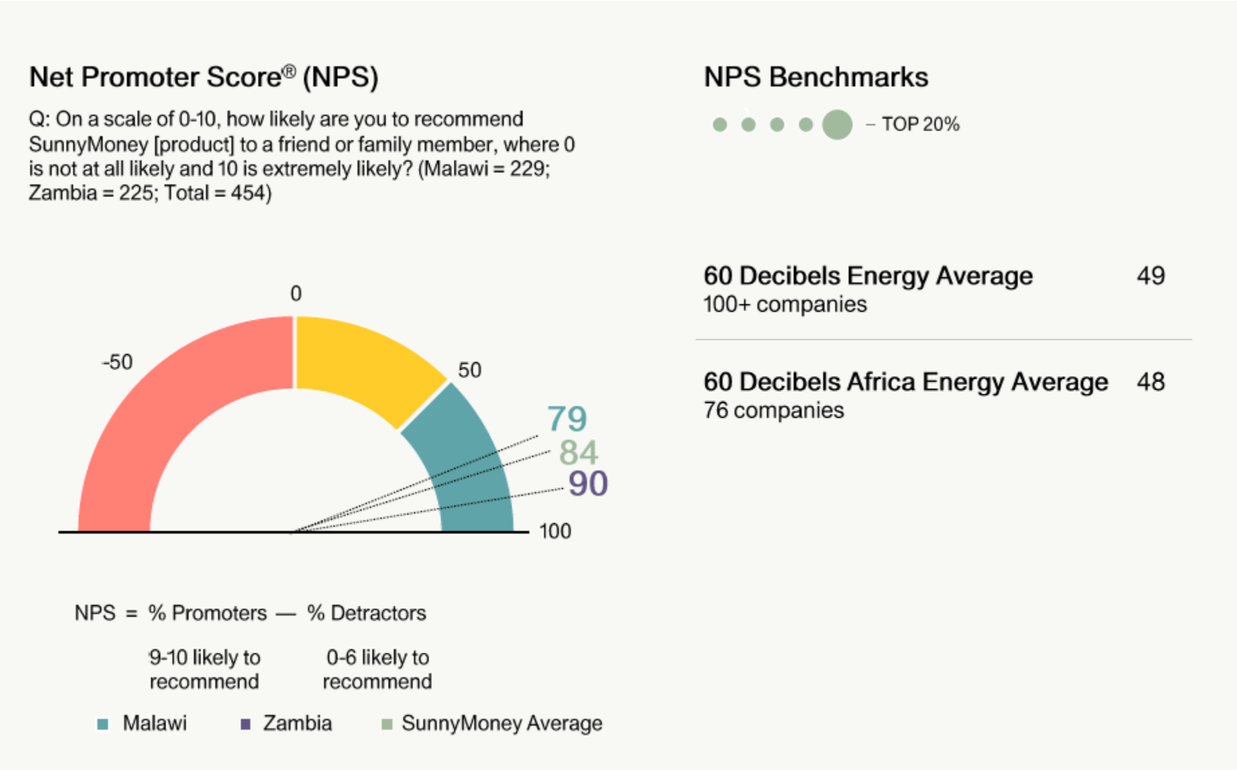
We will be modelling for two potential endgames:

1. **Individual company basis** - A company is provided with the necessary levels of end-user and supply-side subsidies to sell affordable pico-solar products. This then establishes a relationship with the customer which they will see through to market maturity to sell higher value, fully priced products.

2. **Holistic approach -** An organisation, in a similar vein to SolarAid, is provided with the necessary levels of end-user and supply-side subsidies to sell affordable pico-solar products. They bring market maturity which enables private companies to then enter and sell higher value, fully priced products.

PICO-SOLAR AS A LOSS LEADER

WHERE ?



SolarAid has been active in Zambia for over a decade. We have sold 370,000 solar products.

Our Net Promoter Score is 90.

The pilot is taking place in Northwestern Province.

- High rates of poverty
- 6.6 people per square mile
- Two day drive from Lusaka
- We have been active since 2018 in the province
- Some areas are untouched by the grid and solar energy.

PILOT PHASE I

November 21 – March 22

Initial pilot to test the subsidy mechanism

PILOT PHASE I

ACTIVITY

Phase I of the pilot was designed to test our distribution mechanisms for end-user subsidies to prepare us for the full Phase II pilot.

The pilot was delivered through schools. We did the following:

Marketing: Raised awareness of the programme through the distribution of flyers to schools prior to our sales trip.

Baseline survey: The flyers doubled up as a survey to collect data from customers. 54% of customers had not purchased a solar product before (understanding ‘why’ is a priority for Phase II).

Sales: We sold d.light A2s at $3.33 (25% discount from $4.44, K60 from K85) on the November 2021 sales trip. Head teachers receive commission for their involvement.

Follow-up sales: We revisited in February 2022 and sold A2s at $4.44 (K85).

Endline survey: We surveyed those who had purchased A2s. Significant impact was seen including consistent savings on energy spend.

PILOT PHASE I

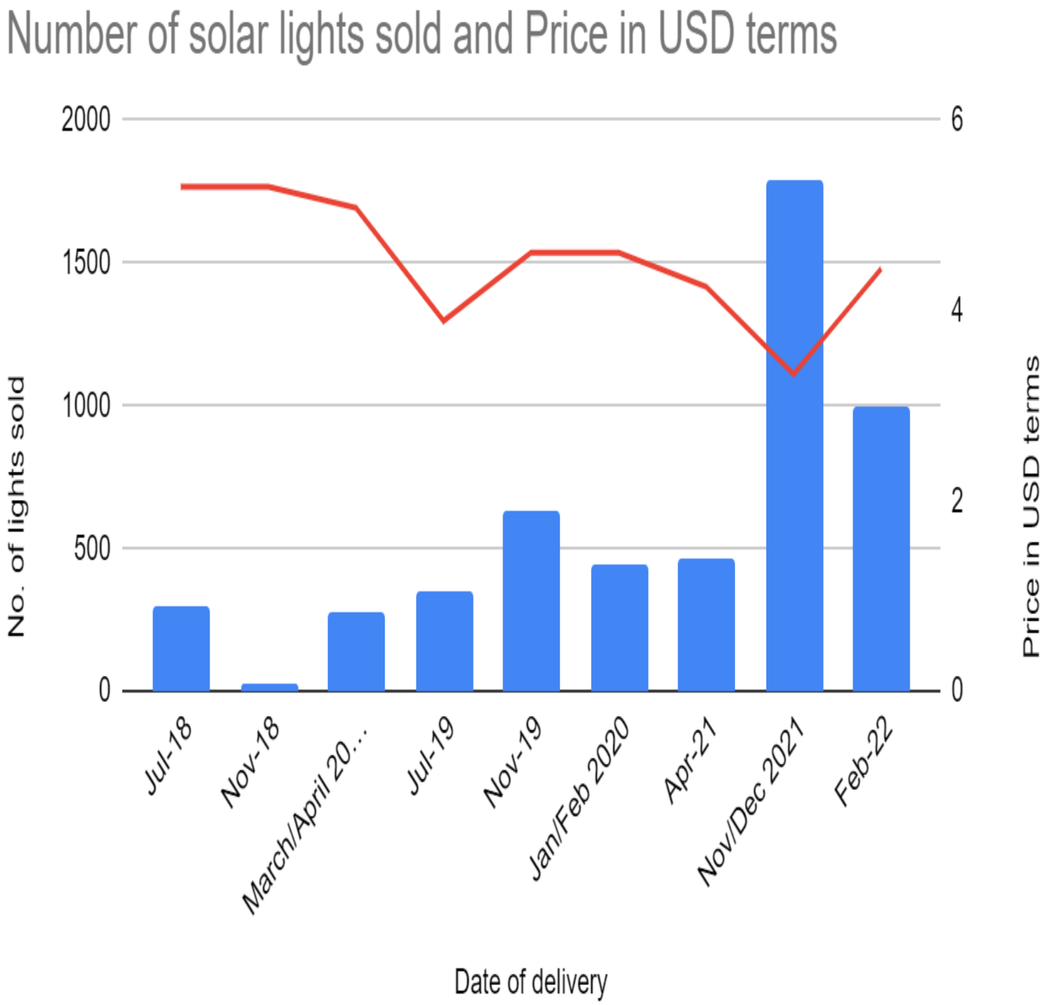
RESULTS

Subsidised A2 sales: We saw a significant spike in sales from previous visits upon offering the 25% discount in November/December 2021. 1787 A2s were sold. Previous high of 632 sold in November 2019.

Follow-up A2 sales: Sales remained high for our follow-up visit. Prices were back to K85. 1,001 A2s were sold.

Further analysis of sales patterns needed to account for variables in addition to price.

Customer feedback: The follow-up survey confirmed the impact of pico-solar to these families – supporting our existing research.



PILOT PHASE II

April 23 – TBC

Large scale pilot to refine the model, measure reach and test subsidies as a ‘loss leader’

PILOT PHASE II

PLAN

A key component of Phase II will be to test the subsidised pico-solar products as potential loss leaders to build sustainable business models to support customers' journey up the energy ladder.

Now – March 2023:

- Pre-programme engagement, partnerships & design
- Fundraising

April 2023 - TBC

- Baseline research
- Delivery
- Follow-up research
- Business modelling.

PILOT PHASE II

PLAN

- **Baseline research:** form an understanding of demographics to design subsidy levels.

- **Delivery:** as dictated by design phase. Expansion of current programme with refined measurable (e.g. A/B testing on length, size of subsidy and energy ladder progression.)

- **Follow-up research:** follow-up with customers and non-customers.

- **Business modelling:** test against our assumptions to from conclusions against our two proposed endgames.

PILOT PHASE II

OPPORTUNITY

The four areas we are seeking partnerships are:

A pilot for the sector:
- Expanding our collective knowledge to design the most effective and impactful pilot.
- Support on the development of the business model to ensure replication is possible.
- Pose the most pressing questions/concerns from the private sector to be answered in this pilot.

End-user focus (w/60 Decibels):
- Design the most effective framework to understand customers and non-customers in the research element of our pilot.
- Deliver the research to understand reach, impact, quality of service and insights into future aspirations for purchases from the customer’s perspective.

End-user subsidy consortium:
- Gathering of key stakeholders to share knowledge.
- Co-fundraise for pilots.
- Advocate for adoption across sub-Saharan Africa in unity.

Funding:
- This pilot requires funding to deliver to the desired scale and to gather all necessary data points for in-depth analysis.

Thank you

Jamie McCloskey
Director of Development
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BRIDGING THE AFFORDABILITY GAP: Testing End-User Subsidies in Uganda

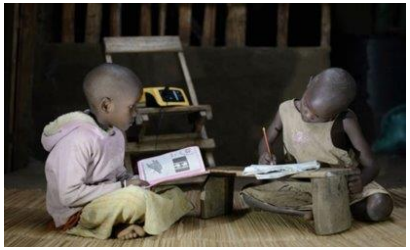
GOGLA WEBINAR

July 2022

Overview: Key Context & Main Insights

Replicating End-User Subsidies of 20%:

- Done in partnership with Signify Foundation in EEA Uganda
- **Key aim: create industry insights on how subsidies can influence affordability <u>over time</u> when prices are <u>lower</u> than average energy spend on kerosene, etc.**
- Two test groups: lower daily rate, and shorter loan tenor
- Started late 2019; over 900 days of data collected so far



signify foundation

Main Insights for the Industry & Policy Makers

A 20% end-user subsidy significantly **improved affordability** in both treatment groups

Both treatment groups realized increasingly **positive results as time went on**

All income groups realized improvements in both treatment groups**; lowest-income** customers had the **most improvement** in repayment & default

Reducing daily rates is recommended vs. reducing loan tenors in subsidy pricing design

Context: Building from Previous Insights on Affordability for SHS in Uganda

ENGIE Customers & Market Reach

Global

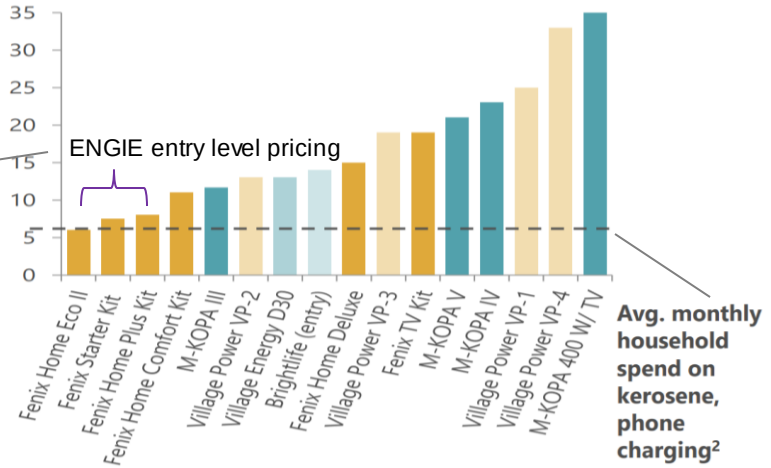
- Nine markets across Africa
- Served **more than 1.5 million SHS customers** to date
- **755,000+** customers currently in repayment

Uganda

- Largest customer base, with 675K all-time customers, including **255K** in repayment customers
- **>50% of customers buy entry level SHS**
- Customers: rural or peri-urban and earn between $2 and $8 per day (median of $4)

ENGIE Uganda Entry Level Pricing Insights

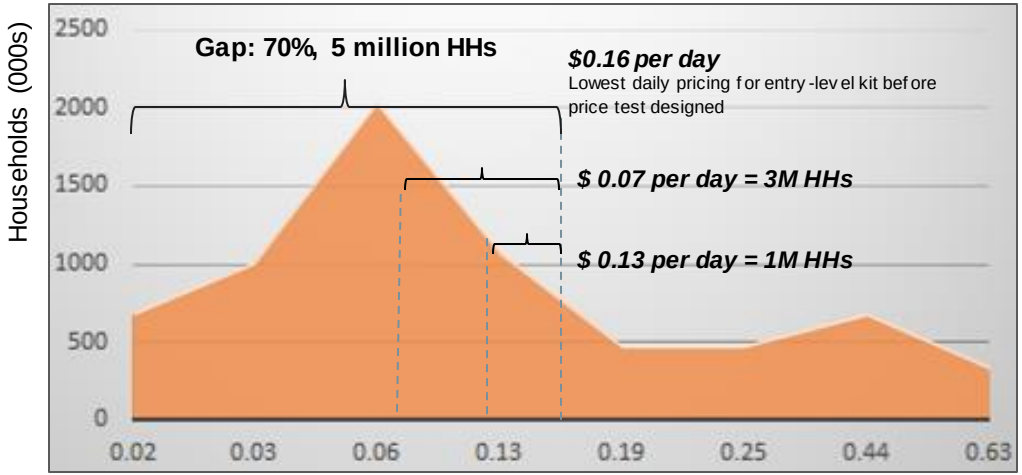
- Entry level customers highly price sensitive in terms of initial purchase decision and ongoing repayment
- "Optimal" deposits for entry level = ~$8 or ~6 to 7% of total cost
- Pricing to average energy spend for entry level kits
- Well-established link between the daily installment size and long-term repayment at non-subsidized price



Graph Source: Shell Foundation & OCA, Uganda Market Mapping, 2018

Context: Building from Previous Key Insights on Affordability for SHS in Uganda

70% of UG HHs Cannot Afford the "Avg HH Energy Spend"



Subsidies could unlock wider affordability

A **55% subsidy** (to $0.07 per day) could enable **3 million households in Uganda** to successfully purchase their own solar solutions

A **20%** subsidy (to $0.13 per day) could unlock affordability & accessibility for **1 million households**

Rationale for testing a 20% subsidy

Source: World Bank consumption database on energy spend; Uganda National Statistics Bureau

Details: The Subsidy Price Test Design

Basic premise: gather insights for the industry and policy makers on the potential impact of *price reductions alone*, and study two approaches to passing subsidies to households in terms of pricing design.

Fenix Power 2

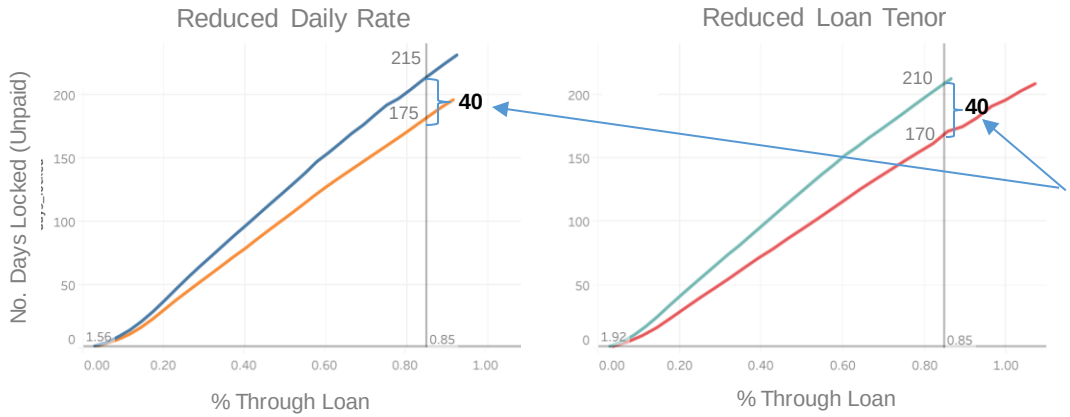
Details on the approach:

- Nationwide controlled experiment in late 2019 to early 2020
- Product: Fenix Power 2
- Applied a 20% "subsidy" (around $20) to the total purchase price
- Tested impact of passing on subsidy through **reduced installment** vs. **reduced loan tenor**
- Treatment group of ~10,000 new customers (~5k each price plan)

Price Design Group	Control & Treatment	Number of customers	Deposit (UGX)	Daily Rate (UGX)	Loan Tenor (Months)	Total Purchase Price (UGX)	Timing of Sale
1- Reduced Instalment Size	Control 1	6077	29,000	500 UGX	35	554,000	Oct 28 - Nov 10
	Treatment 1	4868	29,000	400 UGX	35	449,000	Nov 11 - Nov 17
2 - Reduced Loan Tenor	Control 2	4538	29,000	500 UGX	35	554,000	Jan 1 - Jan 12
	Treatment 2	4858	29,000	500 UGX	28	449,000	Jan 13 - Jan 23

Details: Main Insights for Industry & Policy Makers (1 of 3)

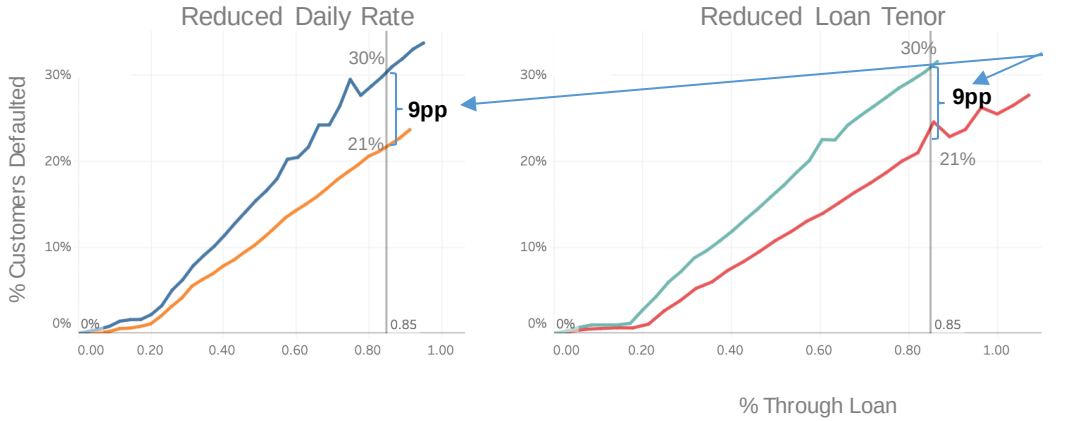
DAYS LOCKED



Statistically and practically significant improvements in Days Locked....

At 85% through the loan, subsidized customers enjoyed **40 more days of light** with both payment plan options
- 2 pp improvement vs. control for reduce loan tenor
- 7 pp improvement vs. control for reduced daily rate

DEFAULT RATES



...and in Default Rates...

Default dropped by **29%** (-9 pp) for subsidized vs. Non-subsidized in both treatment groups*

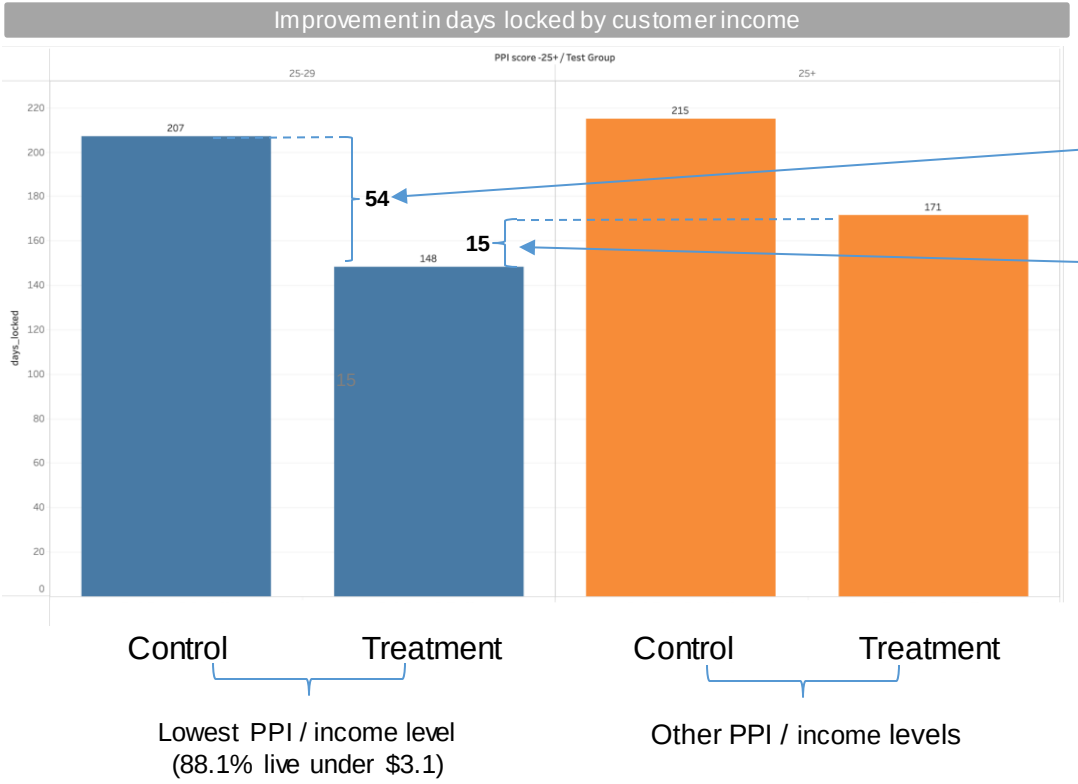
...with differences increasing over time.

Results may still become more pronounced as the loan terms reach 100% and 120% or more

*29% fewer customers defaulting and 27% less in term of portfolio value

Details: Main Insights for Industry & Policy Makers (2 of 3)

Lowest Income Customers Had the Most Improvement on reduced daily rate**:



Lower income PPI group had:

- ~54 more days of light vs. control (+20 pp)
- ~15 more days of light vs. other PPI groups in the treatment (+12 pp)*

(all results statistically significant)

*63.5% PPI bucket was removed because the difference is not significant
**For reduced loan tenor we do not see significant differences across PPI groups, only between control and treatment

Details: Main Insights for Industry & Policy Makers (3 of 3)

Reducing the price via daily rate or loan tenor has trade-offs...
...but we prefer results so far for reduced daily rate.

Price Design Group	Days locked Over days on book	Days locked Over % of loan tenor	Faster Completion	Slower Default	% Paid	Impact lower income customer
1- Reduced daily rate	☺	☺	☺	☺	☺	☺
2 - Reduced Loan tenor	☺	☺	☺	☺	☺	☺

While both treatment groups had better results than the control:

- Reduced daily rate has fewer days locked at every milestone for days on book
- But reduced loan tenor as fewer days locked at every % of loan tenor
- Reduced loan tenor has faster completion
- But reduced loan tenor has faster default (we need more time for full comparison of outcomes)
- % paid is higher for reduced daily rate at 85% of loan term AND at across days elapsed

Takeaways & Recommendations

Daily rates below avg energy spend can unlock long-term access for 1-3M+ Ugandan households

- Historically, many RBF and subsidy schemes have incentivized "connections" but overlooked defaults in PAYGo models
- Pricing entry level SHS below the average current energy spend significantly improves repayment and reduces default
- Future end-user subsidies and RBF schemes could have better long term results if focused more on daily costs

Lower-income Ugandan households stand to benefit the most from lower daily costs

- All income groups had better outcomes with either subsidized pricing plan versus the commercial pricing plan
- Lower income households benefited the most from the subsidized prices, pointing to a strong value proposition
- This is a powerful indication that PAYGo subsidies may be one of the best ways to electrify lower income off grid homes

Subsidies may be the only way for PAYGo companies to reach these pricing levels near-term

- Most entry level PAYGo kits in Uganda are sold on daily rates near or above the average current energy spend
- Most PAYGo solar companies are still working on commercial sustainability (positive EBITDA and cashflows)
- Lower prices reduced default by 7 pp (27%) in the pilot, but this doesn't fully offset the 20% reduction in revenue
- Supply chain & inflation pressures since 2020 have made lowering daily rates more commercially challenging
- During the pilot, many Ugandan PAYGo companies have increased daily rates; others have exited the market

Suggestions for further research & follow up areas

- Study final results of this pilot in another 6 months
- Repeat this study in other market contexts for entry level PAYGo solar; repeat in non-Covid scenario
- Test methods to reduce barriers to uptake among lower income customer segments who would benefit the most
- Test subsidies for productive use assets (maize grinders, e-mobility, irrigation, etc.)
- Also: solve for common concerns governments & policy makers have regarding supply-side end-user subsidies

Q&A and Discussion

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