Shell Foundation

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Transforming Energy Access

March 2026

CrossBoundary Advisory

ODYSSEY

Gender Results Based Financing Pilot
Final Learnings Report

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Agenda

- Introduction
- Design of RBF
- Pilot Implementation
- Impact
- Considerations for Scale-Up
- Conclusion
- Annexure

Overview

Shell Foundation, along with Odyssey Energy Solutions and CrossBoundary, piloted a unique RBF program to increase women's access to and uptake of income generating appliances

Lack of access to reliable energy affects women and girls most in energy-poor markets

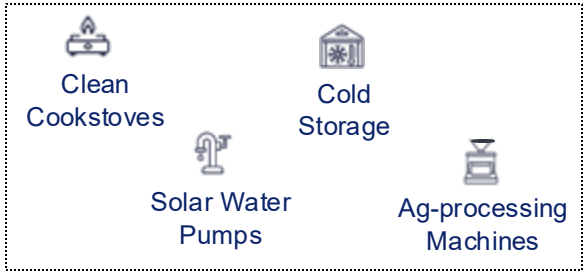
Income generating potential of women is limited to due lack of access to productive assets

Time spent on unpaid work by women is significantly higher than men

Health of women can be poorly impacted by daily activities such as cooking over charcoal stoves

Renewable energy powered appliances can be leveraged to raise women's incomes while lowering emissions

Target Appliances covered under pilot:



Jointly funded by FCDO and Shell Foundation, the consortium designed and launched the Gender Results Based Financing pilot for Productive Use Appliances ("Gender RBF") aimed on providing income sources to women to validate the impact hypotheses and inform a potential full-scale roll-out

Unique positioning of the Gender RBF:

- **Leverages Odyssey's technology platform** to monitor and disburse the RBF to improve efficiency and scalability
- **Hybrid incentive structure** providing subsidies to both the appliance distributor (to incentivize them to target women explicitly) and the end-user (in the form of discounts, to increase affordability)
- **Mandating women ownership** to drive transfer of wealth and income to women
- **Rich data collection** on income generation, cost savings and time savings, alongside appliance usage, and sales patterns from distributors
- **Independent validation** of data by a third party firm to ensure data reliability
- **Technical Assistance** to improve appliance distributors ability to sell to women

Key Eligibility Criteria

- **Geography:** Companies active in Sub-Saharan Africa
- **Appliances:**
  - Solar water pumps – solar or mini-grid
  - Clean cookstoves – Tier 4,5 excluding LPG
  - Cold storage
  - Ag-mills
- **Stage**: Mid to growth stage renewable energy powered appliance distributors
- **History:** Operating history for a min of two years with sales for at least six months
- **Standards:** The appliance sold by the company is included in the VeraSol Product Database or be of similar standard

Additional Eligibility Criteria

- The company must exclusively target women under this program. Groups / enterprises / cooperatives comprising two-thirds women were also be considered under this RBF
- The company was required to have a direct touch point with the end-user /customer, and be willing and able to collect pre- and post-pilot survey data from the end-user / customer. The clean cookstove company was also required to share appliance usage data through a CRM integration

We launched the Gender RBF to test a simpler, tech-enabled model that targeted women in energy access to address key gaps from our landscape report

We developed and published a landscape report last year on results-based financing (RBF) for productive use of energy to advance gender outcomes

The findings highlighted the need to design an RBF model that integrated gender and income-generation objectives at its core

Targeting Women: Despite women being primary users of off-grid energy products, less than 10% of RBF funding explicitly targets them, underscoring the need for mechanisms designed specifically to reach and benefit women

Simplified, balanced RBF design: Past RBFs have often been expensive to participate in and administratively heavy, suggesting the need for a model that better balances the operational realities of companies with the desired development outcomes

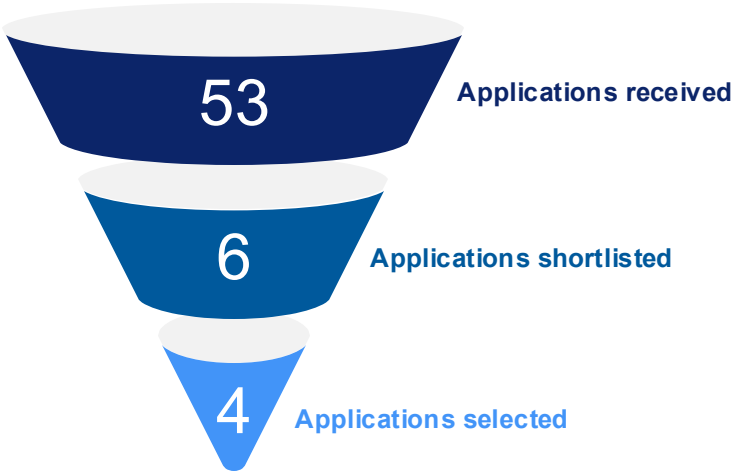
Technology to reduce costs: Digital tools and automation such as mobile data collection and IoT-enabled monitoring can significantly reduce verification and reporting costs, making RBF schemes more scalable and efficient

The main program team comprised Shell Foundation, Odyssey, and CrossBoundary Advisory

Entity	Role	Details
Foreign, Commonwealth & Development Office Shell Foundation	**Funders and commissioners**	• Designed the Results-Based Financing (RBF) pilot to meet strategic objectives of income upliftment, with a particular focus on improving economic outcomes for women • Provided concessional capital and funding support to de-risk private sector participation
ODYSSEY	**Technology provider to manage and track data**	• Served as the centralized platform to track and manage data for the RBF pilot • Captured impact metrics across portfolios • Streamlined the due diligence process for projects with a lens toward gender-positive outcomes • Acted as the disbursement agent for results-based payments
CrossBoundary Advisory	**Design and structuring**	• Designed the results-based financing (RBF) structure informed by findings from the landscape assessment • Defined the fund flow, incentive design, and impact measurement framework • Supported distributors in refining payment plans to integrate RBF mechanisms • Identified key impact metrics and survey data points for distributors to track outcomes effectively • Organized learning workshops and synthesized lessons learned across stakeholders
Additional partners		
60 dB	**Third party impact verification**	• Collected endline impact data directly from customers using surveying best practices to be able to report with high confidence levels and address risks of data bias by ensuring data wasn't solely self-reported by distributors
Individual Consultants	**Technical assistance providers**	• The pilot included customized TA for each participating distributor • Support was tailored to help companies better target and serve women customers, improving their ability to meet RBF milestones

We received 53 applications and ultimately selected four participants for the pilot based on five key criteria

We ran a one-month long call for applications in March 2024 for interested appliance distributors



Applications were assessed on the following criteria*:

- Organization team and track record (15%)
- Financial performance (10%)
- Productive-use experience (25%)
- Gender focus (25%)
- Data collection and sharing abilities (15%)
- Additionality (10%)

The scoring committee included program team members as well as independent advisors, including from Value for Women, CLASP, and Universal Energy Facility, for well-informed and unbiased decision-making.

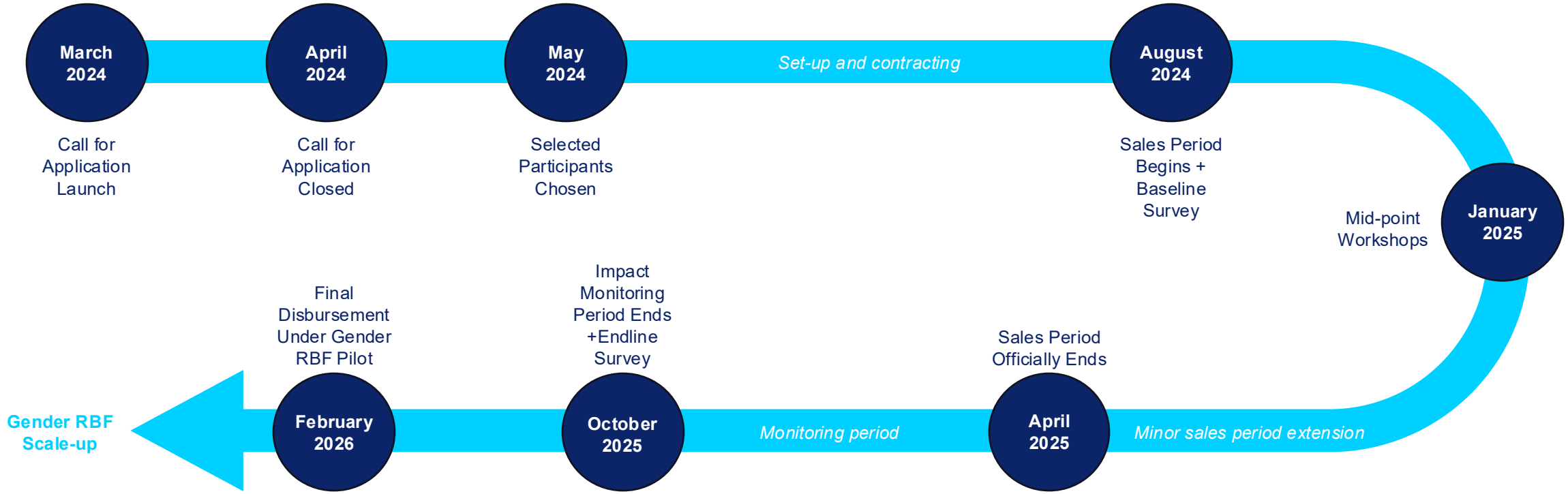
We selected four distributors, each focusing on a single appliance

The total grant of US$500K was evenly allocated across the four appliance distributors, providing each with a maximum subsidy pool of US$125K for a single distributor / appliance type.

Appliance	Distributor	Description
Clean cookstoves	burn™ life · saving · stoves	Clean cookstove manufacturer in Africa, BURN designs and locally produces high-efficiency biomass, LPG, and electric stoves to reduce emissions and household fuel costs.
Ag-processing equipment	FARM WAREHOUSE	Farm Warehouse provides a range of agricultural products including post-harvest processing equipment
Cold storage	KOOLBOKS LIFE IS KOOL	Koolboks provides solar-powered refrigerators that offer affordable, off-grid cold storage solutions for last-mile households and small businesses.
Solar water pumps	SunCulture	SunCulture delivers solar-powered irrigation systems and climate-smart agriculture solutions to help smallholder farmers improve yields and incomes.

**Weightage on each criterion is in parenthesis*

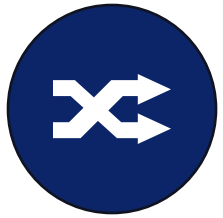
The entire Gender RBF pilot program spanned 20 months, from the call for applications to the final disbursement



Design of RBF

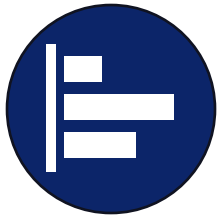
Building on lessons from existing RBF programs, we enhanced the Gender RBF pilot with a hybrid structure, tailored subsidy sizing by appliance type, and milestone-based disbursements

Gaps in existing programs



Incentives to both customers and distributors

- Existing RBF programs typically focus on **either the supplier or customers, not both**
- Most programs either:
  - Provide incentives to appliance distributors to expand into underserved markets, or
  - Offer subsidies directly to customers to encourage appliance uptake
- A hybrid approach incentivizing both supply and demand can:
  - **Create a push for distributors to reach target women** and collect data
  - **Generate pull by making appliances more affordable for women** end-users and provide impact data
- We incorporated a hybrid model, with subsidies directed to both distributors and customers.



Linked subsidy size to income generation potential

- Subsidies ranged from 30% to 60% of the appliance price, depending on its characteristics
- Four key factors were considered in determining subsidy amounts:
  - **Income-generation potential:** Appliances with a higher ability to generate income (as identified in the landscape report) were prioritized
  - **Price:** Higher-priced appliances received larger subsidies to offset affordability barriers
  - **Market Demand:** Appliances with unproven market demand (with low penetration and fewer companies) received more support
  - **Availability of other subsidies:** Appliances already benefiting from other support mechanisms (e.g., carbon credits) received relatively lower RBF subsidies.

Payments linked to target milestones

- Subsidy disbursements were tied to four key milestones, designed to address distributor constraints and incentivize desired outcomes:
  - **Milestone 1 - Signing:** Disbursed upfront to address working capital shortages often cited by distributors in RBF programs
  - **Milestone 2 - Sales and Baseline Survey:** Tied to a verified sale to a woman and submission of baseline data, rewarding the intended output
  - **Milestone 3 - Usage Verification** (for clean cookstoves only): A milestone to encourage behavior change and sustained use, since cookstove use has an associated cost
  - **Milestone 4 - Endline Survey:** Disbursed after endline data is submitted 6 months post-sale to capture longer-term impact

The Gender RBF pilot initially planned to deliver direct subsidies to end-customers and link incentives to outcomes, but these structures proved challenging to implement in practice

There is no straightforward mechanism for RBF financiers to transfer incentives directly to customers

- Integrating **direct cash transfers to end-customers** into the RBF design via digital/mobile money could reduce the burden of monitoring end-user subsidies
- Due to **integration constraints**, the pilot routed subsidies as **monthly payment discounts from the appliance distributors** to end customers
- This **requires validation of discounts being passed on to customers,** increasing administrative burden for both the program team and the appliance distributor

Tying payments to outcomes is complex, as it can create incentives for gaming the system

- Most energy access RBFs reward outputs (e.g. units sold), but the Gender RBF tried to **reward actual continued usage where possible**, (i.e., Clean Cookstove)
- With other appliances, there is a **risk of moral hazard**, as most have **no usage cost**, unlike clean cookstoves. To **avoid incentivizing overuse, as well as the complexities in monitoring** usage, we chose **not to link subsidies to usage** for appliances other than cookstoves

We structured the RBF with milestone-based payments over six months, ensuring the final design addressed the key gaps we had identified

70% of the total RBF will remain with the distributor, while 30% of the RBF is passed on to the end consumer in the form of discounts. Illustrative flow of funds:

Shell Foundation & Odyssey	Disbursement to Appliance Distributor	RBF Retention by Appliance Distributor	Discount Passed on to End User
Upfront	Group 1: 20% of total RBF Group 2: 10% of total RBF		
Discount passed on to end user at point of sale			Group 1: 20% / appliance Group 2: 10% / appliance
Validation of sales & completion of survey	35% / appliance	35% / appliance	
Achievement of target usage *(~Month 3)*	Group 1: 0% / appliance Group 2: 20% / appliance	Group 1: 0% / appliance Group 2: 10% / appliance	
Target usage discount to be passed on in following month			Group 1: 0% / appliance Group 2: 10% / appliance
Start of month 6 *(Incentive to fill out survey)*			10% / appliance
End of month 6 *(Completion of end-line survey and validation of survey incentive)*	Group 1: 45% / appliance Group 2: 35% / appliance	Group 1: 35% / appliance Group 2: 25% / appliance	
	100%	***70%***	***30%***

Group 1: Ag-processing, Cold Storage, Solar Water Pumps;
Group 2: Clean Cookstoves

Although we had sought feedback before finalizing the design, most inputs came during onboarding and pricing discussions, requiring us to remain flexible in responding to distributors' challenges

We ultimately allowed distributors to spread the total discount across the monitoring period

Feedback on the proposed RBF pricing structure

- Distributors found it to be a **burden to adjust pricing structures for a small-scale pilot** and were generally reluctant to make changes to their payment plans. Pricing adjustments were especially complex for distributors **handling multiple appliance types, as each SKU came with its own payment terms**.
- Distributors were **concerned that the steep rise in monthly instalments** after the six-month RBF discount period could make appliances unaffordable and result in payment defaults
- Proposed **discounts to customers at specific milestones were sometimes perceived as too large**:
  - **Downpayment:** customers would lack sufficient skin in the game
  - **Discounts after downpayment:** at times was larger than the monthly instalment owed by the customer, which added complexity to implementation

Final changes to the proposed RBF pricing structure

- To simplify tracking, **most appliance distributors decided that the customer discount (30% of the RBF) would be spread evenly across the 6-month period,** with some distributors passing discounts beyond this period

- *While most distributors followed the 70/30 distributor-to-customer split, one distributor opted to pass the entire RBF to customers to avoid pricing shocks once the RBF period ended*

We found that proactively addressing key issues at the contracting stage is essential to enable smooth and effective implementation of the RBF

✓ *Incorporated within pilot proactively*

Clarifying eligibility criteria to be classified as 'clean'

- Clear definitions are needed for what qualifies an appliance as "clean": For example, would a retrofitted fridge that could be powered by solar appliance be eligible under the program?

✓ *Incorporated within pilot proactively*

Finalizing payments plans prior to the start of sales

- During contracting, the program and distributor should agree on and approve the final pricing structure for various product variations upfront, including any minimum customer payment requirements, and ensure this remains consistent through the period of the program
- All parties should be aligned on the final pricing and the passing through of benefits to the end customer prior to the start of the sales period to reduce delays

Creating clear timelines and incentives for data collection

- Introducing penalties in the contract to ensure timely survey data collection, to be completed within one month of each milestone (i.e., one month after sale and one month after six months post-sale)

✓ *Incorporated within pilot proactively*

Factoring churn into incentive schedules

- The program should estimate and define acceptable levels of churn (defined within the program as 10%), to promote long-term ownership and impact for women while preventing partners from selling to low-creditworthy customers solely to access RBF incentives

✓ *Incorporated within pilot proactively*

Managing foreign exchange (FX) risk

- With grants disbursed in USD, fluctuations in local currency can lead to recipients receiving more or less grant funding than originally planned
- Incorporating mechanisms to account for foreign exchange volatility is important

Incentivizing accelerated sales to increase impact

- We could have created a competitive incentive structure by allocating a fixed pool of capital with a minimum guaranteed amount for each partner, and allowing the remaining funds to be accessed on a first-come, first-served basis
- This would reward faster performance and encourage timely sales within the agreed six-month period

Pilot Implementation

Distributors received Technical Assistance (TA) support, which was deployed at different stages depending on their specific requirements

This included a wide range of options, detailed below, which companies drew on based on their specific need:

Gender-Focused Value Proposition

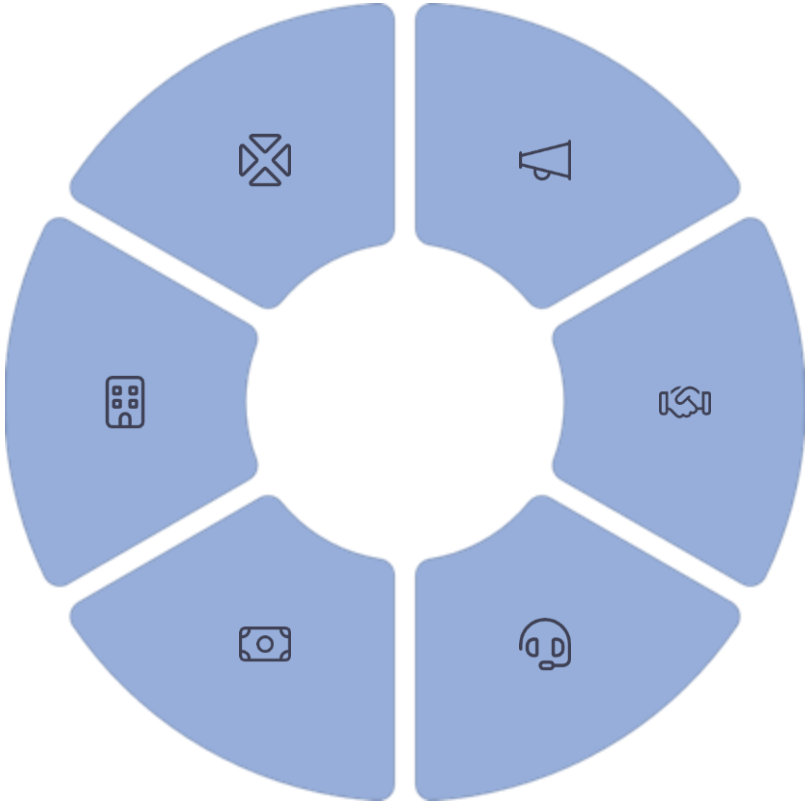
Identifying and articulating specific benefits that address women's needs and priorities

Organizational Capacity

Building internal skills and systems to support gender-inclusive business practices

Women-Centered Financing

Creating flexible payment options aligned with women's cash flow realities



Gender-Focused Marketing

Creating campaigns and materials that resonate with women's decision-making processes

Inclusive Sales Models

Developing approaches that accommodate women's purchasing patterns and preferences

Gender-Smart After-Sales Support

Ensuring ongoing assistance meets women's specific needs and constraints

TA was critical in ensuring that appliance distributors were able to achieve gender outcomes during the pilot

Technical Assistance supported appliance distributors test and apply the following..

- TA helped distributors **refine sales and marketing** in order to improve lead conversion and reduce unconscious gender bias
  - Distributors used TA to evaluate product safety and align products with needs, which surfaced new use cases (e.g., cookstoves in salons to heat water)
  - TA enabled some distributors **refine marketing materials** and behavioural messaging (e.g., through jingles)
  - TA supported **targeting of women customers** through new and previously untapped channels (e.g., through SACCOs, women's groups)
- TA enabled distributors to develop **new microcredit innovations** to better align payment terms with cashflows:
  - One distributor developed a **new three-year asset-backed financing scheme** with no-down-payments for customers without formal credit histories
  - A distributor introduced a new **Point of Sales (POS) payment model** which allowed for daily payments (designed around women's cashflow realities) and automated debits which facilitated easier repayment
  - TA enabled one distributor develop **gender-lens credit assessment guides** using customer bank statements

...Which has helped distributors integrate new strategies to unlock a new customer segment and increase women representation at firms

In some cases, the RBF **increased sales to women by 70% year-on-year temporarily** for some appliance distributors. Though this is a temporary increase in sales, this shift demonstrates a strong demand among women

During the pilot implementation, appliance distributors observed that **women sales agents consistently outperformed their peers, not just in selling to women, but overall**. This insight has led to an unintended but positive shift toward increased recruitment of women sales agents

The RBF helped appliance distributors test innovative marketing approaches to target women

- Leveraged women-owned small businesses in **high-traffic urban locations** as brand ambassadors
- **Demonstrations such as cook-out activations** led by women customers became a primary acquisition channel
- **Referral campaigns** became especially effective because women operated in visible, social spaces

- Introduced **anchor woman / demo leader model:** a respected woman processor hosts demos and sells to peers for commission
- Introduced an **apprenticeship model** linking new women processors to experienced women
- Post-pilot, focused on a **central hub model** to monitoring and reduce downtime of appliances arising from technical difficulties

- Major pivot to women-led marketing channels:
  - **Radio jingles** targeting market women
  - **Testimonials and videos** featuring women customers (women far more willing than men to publicly share experiences)
- **Visual marketing redesigned** to show women using refrigeration for income (fish, drinks, perishables)
- Sales agents discovered **strong peer-referral loops** among women

- Shifted messaging from "farmer income" to **household and time-saving benefits,** explicitly highlighting women's labour burden (water fetching, washing, cleaning)
- Used **women-specific merchandise** (aprons, dust coats) and adapted sales scripts to engage both spouses, rather than pitching only to men
- Learned that **"selling to women" often actually meant selling to the household**, given joint decision-making and asset use

Figure | Marketing collaterals developed under the Gender RBF pilot

Source: Koolboks

Women-to-women marketing was consistently highlighted as an effective approach to targeting women and drove increased hiring of female sales agents

Women sales agents were able to better target women customers

Women agents **built trust** more easily with women customers

Often, as customers themselves, agents were able to provide strong **product referrals**

Women were better able to **communicate benefits** of appliances based on their own experience

There was an explicit push to increase not only women sales agents, but more women across tele-sales, after-sales support, and technical support roles

- Encouraged women to **apply throughout recruitment process**
- Provided existing employees with **referral bonuses** for new agents
- Hosted **open recruitment days**
- **Prioritised women applicants for specific roles**

On average, the share of women customers remains higher than pre-pilot levels, even at least six months after the final pilot sale

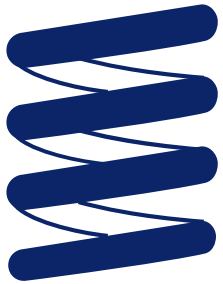
The share of women customers increased for all distributors immediately after the pilot, with gains ranging from 4% to 27%. The customer mix shifted six months after the RBF sales period ended, with mixed results across distributors.

Distributor	6 Months Post-Pilot Proportion of Women Customers	
burn™ life · saving · stoves	**Back to pre-pilot levels**	BURN estimates that its pre-pilot figures likely underestimate appliances used by women, as household sales contracts are often registered in men's names. Six months after the pilot, the share of women customers declined **due to a pause in sales to women-owned businesses**, driven by carbon crediting methodologies that prioritize household targeting (business model driven rather than demand driven)
FARM WAREHOUSE	**Significant increase from pre-pilot levels**	Farm Warehouse shifted its business model from selling directly to customers, which often resulted in non-payments and posed technical barriers for women, to an **anchor-hub-based processing model**. According to the distributor, this transition enabled a significant increase in women customers
KOOLBOKS LIFE IS KOOL	**Slight decrease from pre-pilot levels**	Sales declined sightly 6-months post-pilot. According to the distributor, this was primarily driven by **reduced short-term demand and seasonality** also influenced purchasing patterns
SunCulture	**Slight increase from pre-pilot levels**	Sales to women increased initially due to improved sales strategies, greater recruitment of female sales agents, and word-of-mouth referrals. However, because water pumps are typically registered as household assets, the distributor believes the post-pilot decline in the share of women customers reflects **purchases being recorded in men's names,** even when women may have been the primary users and beneficiaries. This likely means the impact on income, time, and health on women continued, but we are unable to attribute it accurately in the data

Two distributors experimented with innovations to their financing approaches during the RBF

Targeting women through MFIs and credit groups

Direct customer relationships outperformed intermediary-led credit. One distributor piloted partnerships with women MFIs and cooperatives given the scale and financial support these groups provide. However, this approach was not continued due to governance failures, miscommunication, and repossessions from MFIs and cooperatives



Experimenting with shorter payment tenors

Women business customers often prefer shorter tenors with higher instalments. One distributor introduced flexible repayment tenors and product configurations to cater to the preferences of business owners. Higher income from the product enabled customers to pay off PAYGo instalments early and own the asset sooner

BURN saw lower churn under the pilot than portfolio-level churn, as they newly targeted the productive-use customer segment

Higher churn for other appliance distributors seems to have been driven primarily by challenges from the short timeline of the pilot

Distributor	Churn under pilot compared to portfolio-level churn (male and female)	
burn™ life · saving · stoves	**Lower than portfolio-level churn**	Lower delinquency rates (compared to their overall portfolio) were observed because the focus shifted to **businesses rather than households,** as businesses can generate income from the assets and are therefore better able to repay
FARM WAREHOUSE	**Higher than portfolio-level churn**	Churn for women was lower outside of the RBF segment due to the pure hub model, where strong operational support and responsive technical services reduced repayment risk. Higher churn in the RBF segment was driven **by political instability in the region and partnerships with SACCOs that faced governance challenges**, leading to weaker repayment behaviour
KOOLBOKS LIFE IS KOOL	**Higher than portfolio-level churn**	Koolboks attributed the higher churn under the pilot to the combination of a **large demand spike driven by the 25% discount** and **a temporarily less-stringent credit assessment to onboard more women**, which meant some customers took on the product without fully planning for repayments beyond the down payment and first month
SunCulture	**Higher than portfolio-level churn**	SunCulture attributed the higher churn under the RBF pilot to the short **implementation timeline,** which limited time to train sales agents to clearly communicate payment plans. This led to higher attrition as **customers faced changes to the payment structure during the loan tenure**

Distributors tried to reduce churn through consistent follow-ups and hands-on after-sales support

To ensure good repayment behavior, distributors focused on:

Monitoring

- Created dedicated call-centre repayment teams that **prioritised customers based on repayment risk**
- Introduced **intensive monitoring in first 30 days after purchase**
- Escalated **high-risk cases to physical field visits**
- Combined **digital reminders with in-person visits** and retraining

After-Sales Support

- Provided **quick technician response**
- **Troubleshooting training and retraining support** to customers
- **Introduced repair and training mechanisms** via call centres and applications

Other suggestions to reduce repayment risk included financial literacy training, flexible repayment tenors aligned with cashflow, thorough credit assessment, and proactive issue identification

The distributor-led data collection process proved challenging; however, a third-party impact assessment provided strong insights on impact from the pilot

Distributors were required to collect baseline and endline surveys as part of payment disbursement milestones. The data was collected with the intention of assessing impact on income, time savings, and other benefits. However, the data quality varied significantly. An independent impact assessment agency was able to share strong insights with a significantly lower data burden

Distributors often lacked staff with the skills needed to effectively conduct surveys

Conducting surveys properly requires training, but tight timelines limited the ability to provide this. Additionally, many data collectors were commission-based agents, making it difficult to justify the time and cost required for training and high-quality data collection

Challenges with data accuracy

We aimed to collect data on income changes from appliance use and time saved. However, respondents were often hesitant to share income information or did not consistently track income changes, and found it difficult to accurately estimate time savings

Difficulties in re-connecting with some customers for endline surveys

Distributors faced difficulties reconnecting with some customers due to changes in phone numbers, limited availability, phones often being shared across households, and at times customers being unwilling to engage, which meant many endline surveys could not be completed

Survey fatigue extended timelines for third-party impact verification

Given the number of required surveys (baseline and endline), the third-party impact verifier also faced some difficulty reaching respondents due to survey fatigue

Opportunities for automation

The data collection process was very resource-intensive, requiring surveys to be conducted, manually entered into Excel, and then uploaded into Odyssey. Integrating data capture directly into the CRM could help reduce this manual burden

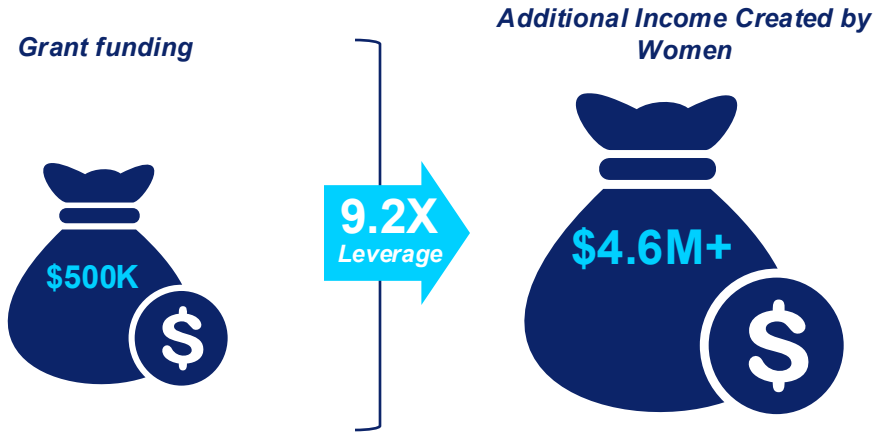
Impact

The US$500K Gender RBF pilot was able to support the sale of sale of 2,494 income generating appliances to women

The pilot concluded with 2,494 units sold across the four appliance distributors

Appliance	Distributor	Final Sales
Clean cookstoves	burn™ life · saving · stoves	1737
Ag-processing equipment	FARM WAREHOUSE	130
Cold storage	KOOLBOKS LIFE IS KOOL	231
Solar water pumps	SunCulture	396

Women earned US$4.6M in incremental net income over the appliances' useful life, after accounting for appliance costs and churn

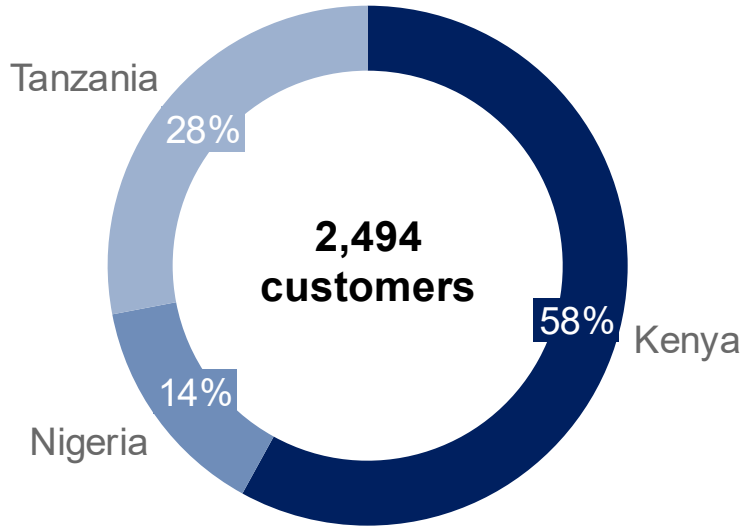


The US$500K deployed during the six-month pilot **enabled approximately 2,500 women to earn an estimated cumulative income of over US$4.6M+** over the life of the appliance, **reflecting income generation of up to 9.2X over its lifetime**

Note: Calculations available in the annexure

89% of customers did not previously have access to appliances like the ones provided under the RBF

Customers were concentrated in Kenya and Tanzania, driven by high cookstoves sales



Nigeria sales skewed toward larger appliances, mainly grain mills and cold storage, which meant fewer customers given the higher price point

Appliances improved productivity, convenience, and / or efficiency compared to alternatives

- **89%** — Customers previously **used charcoal cookstoves to cook**
- **41%** — Customers previously **used a mortar and pestle for processing**
- **89%** — Customers previously **used an existing fridge for cooling**
- **47%** — Customers previously **used buckets or water cans for irrigation**

Source: Data collected by appliance distributors, 60 Decibels Impact Assessment

Data collected by 60dB is identified by their logo

The impact assessment suggests that the appliances have had an overwhelmingly positive effect on income and savings, time savings, and health

81%

Customers reported income increases, with **29% reporting significant increases** in their incomes

77%

Customers reported an improved ability to save, with **73% of customers reporting reduced energy expenditures**

57%

Customers reported spending less time on business, **driven by appliance efficiency**, while those who reported higher time on business was **driven by higher customer demand and extended business hours**

77%

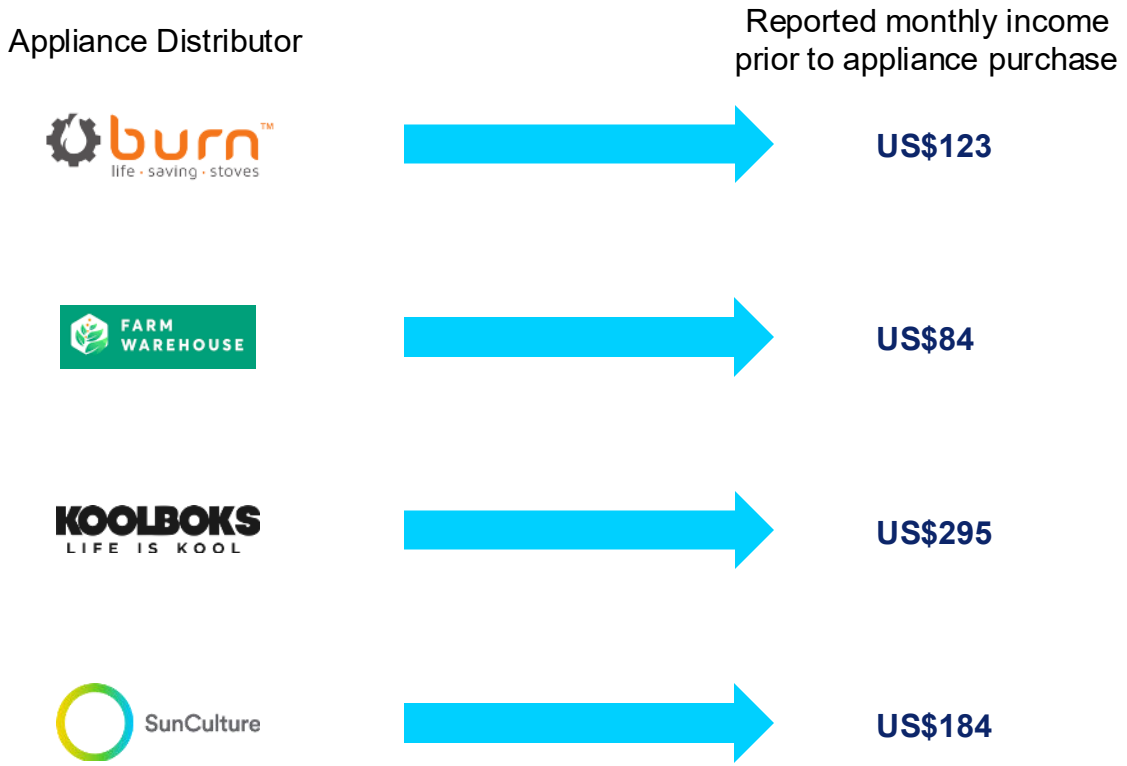
Customers reported that **theirs and / or their family's health improved.** Health improvements reported by BURN's customers were driven by **improved respiratory health**

Source: 60 Decibels Impact Assessment

Data collected by 60dB is identified by their logo

9 in 10 customers reported that they were in engaged in an income-generating activity before purchasing the appliance

According to baseline surveys conducted by distributors, customers reported earning an average of US$171 a month prior to the RBF



- Source: Data collected by appliance distributors, 60 Decibels Impact Assessment
- Data collected by 60dB is identified by their logo

Our calculations suggest that across all appliances, **incomes increased by 36%,** with women earning, on average, an additional $61.6 per month

Note: Calculations available in the Annexure. This estimate is based on data aggregated across appliances.

When incremental income is included, implied payback periods decline by ~24–55% across the four distributors

Distributor	Average price for appliance	Estimated baseline monthly income	Initial payback duration in months (price / income)	Estimated post-pilot monthly income[1]	Payback duration in months (price / new income)	Decrease in payback period
burn™ life · saving · stoves	$164	$123	1.3	$163	1	**24.4%**
FARM WAREHOUSE	$1423	$84	16.9	$187	7.6	**55%**
KOOLBOKS LIFE IS KOOL	$1475	$295	5	$406	3.6	**27.5%**
SunCulture	$831	$184	4.5	$251	3.3	**26.8%**

Because the appliances generate **meaningful additional income**, customer repayment capacity improved during the pilot, which can support **a less grant-intensive economics at scale**

Source: 1 - Calculations available in the annex. Income information was provided by customers to appliance distributors in the baseline survey. Appliances prices (across various payment / pricing plans and countries) have been aggregated for the average pricing

Considerations for Scale-Up

A scale-up of the RBF would take key lessons learned from the pilot and incorporate additional strategic refinements to improve the overall delivery

	1 Structuring	2 Implementation	3 Technology Incorporation
What worked well	• Subsidy size that is **linked to appliance cost and income generation potential** • **Milestone-based disbursements** to ensure timely data sharing by distributors	• **Regular communication with participants**, including pilot-wide sessions to facilitate cross-learning • **Hands on support for distributors**, such as hands-on refinement of payment plans to incorporate subsidy, addition of new appliances such as retrofitted freezers to respond to market signals • **Flexible TA** based on the needs of each distributor to enhance gender inclusion	• Leverage technology platforms to **streamline communication** with distributors and **enable real-time tracking of sales and customer connections**
What could be improved	• Enhance the subsidy design to **promote longer-term sustainability** and reduce dependence on external support • Focus on **enterprise funding to create long-term change in business models** to improve reach to women; **Simplify or remove end-user subsidy** structure • Ensure program timeline is extended to allow for alignment on payment plans / product variants and ensure timeline aligns with payment plans of appliances to **reduce sharp increases in monthly instalments**	• **Ensure clear roles and adequate resourcing** from the program team to maintain rollout pace • **Set firm, time-bound deadlines** to prevent key activities like data collection from being deprioritized, ensuring timely API integration, confirming TA needs, and approving pricing plans • **Simplify data collection** by using a third-party sample-based approach, as in-house data quality was overestimated	• Utilize additional technology features and **automation to minimize manual effort for appliance distributors** and to set up automated reminders that keep **program timelines** on track

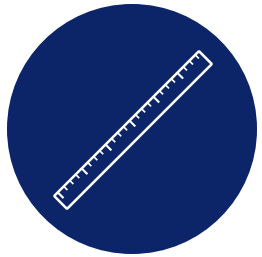
Given the program's focus on income-generating appliances, the scale-up could be designed using a more sustainable model to reduce grant dependency

Grant capital could be used more efficiently to sustainably overcome the barrier of affordability for income-generating appliances

	Reverse Auction Subsidies	Declining Subsidy Model	Returnable Grants
Description	A competitive mechanism where firms bid for the lowest subsidy they need to deliver appliances or outcomes (e.g., sales to women). Subsidy awards go to the most cost-efficient bidders	A time-bound model where subsidy levels decrease as market maturity, volumes, or technology costs improve. For instance, this could be applied to financing costs to increase affordability in early stages and tapering off over time or scale	A hybrid instrument where capital is provided as a grant initially but is repaid if the enterprise meets predefined outcomes. This can reduce risk perception for distributors expanding access to women customers, as repayment can be tied to future profitability from increased sales to women or investment rounds
Advantages	✓ Drives cost efficiency and transparency ✓ Reveals true market subsidy needs ✓ Rewards innovation and operational efficiency	✓ Encourages early market participation while signaling a clear path to independence ✓ Builds private-sector confidence in early phases ✓ Avoids long-term subsidy dependency	✓ Balances flexibility and accountability ✓ Reduces grant dependency and recycles capital ✓ Can crowd in private investment by demonstrating repayment discipline
Disadvantages	× Can favor larger players with lower capital costs × Risk of underbidding leading to poor delivery × May exclude smaller or women-led distributors	× Requires accurate market diagnostics to set the decline pace × May withdraw support prematurely if adoption lags × Can leave smaller firms stranded when subsidies taper	× Complex to monitor × May deter smaller firms that cannot commit to repayment risk × Requires strong verification of results and transparent governance
Examples	Kenya Renewable Energy RBF (GIZ/EnDev): Used reverse auctions to competitively allocate results-based subsidies to mini-grid developers and later to SHS distributors. Developers bid for the lowest grant per connection. CLASP and GEAPP's Productive Use Financing Facility (PUFF) is another example	Global LEAP / Efficiency for Access RBF: Incentive levels declined over rounds as markets matured and sales volumes increased.	PREO (Powering Renewable Energy Opportunities, UK aid & Carbon Trust): Deployed returnable grants and recoverable advances to productive-use energy enterprises in Africa. Repayment was triggered if projects achieved commercial success or follow-on investment.

Note: This slide is illustrative and not a comprehensive set of solutions. The information on the identified structures is general and not context-specific analysis

The scale-up should reduce the focus on end-user subsidies and extend timelines to more accurately capture program impact



Reducing focus on end-user subsidies as most implementation and repayment challenges emerged from short-duration subsidy pass-through

- If end-user subsidies are retained, it is critical to extend the program to 24–36 months (typical payment plans for most appliances under the RBF) to allow discounts to end-users to be spread across the full repayment period, smoothing monthly instalments and reducing the risk of default from sudden pricing changes
- Otherwise, subsidies can be directed to the enterprise to encourage business model innovation aimed at women customers, while outcomes such as long-term ownership (tracked using the CRM) can be incentivized to support long-term sustainability.

More robust impact assessment through longer monitoring period

- Future programs should span multiple sales cycles (at least 24–36 months) to better capture sustained usage and impact
- Impact measurement should be the responsibility of an independent impact assessment agency to collect accurate and consistent data
- A longer duration would enable a more accurate assessment of income generation, repayment behaviour, and long-term outcomes, particularly for appliances such as solar water pumps where benefits become evident only after two to three sowing seasons

Feedback on the program implementation of the RBF pilot was mostly positive, but distributors suggested improvements including greater technical integrations

What worked well

- **Explanation of the RBF structure was clear:** Distributors all agreed that the overall milestone and incentive structure were clearly articulated by the program team
- **The program team's collaborative / flexible approach was critical in problem solving:** Distributors appreciated responsive programme management and willingness to clarify requirements or adapt implementation where operational challenges emerged.
- **The RBF actually helped distributors generate valuable customer insights:** The pilot helped better understand aspects such as women's payment behaviour patterns, preferred sales channels, product configuration preferences, and training and support needs

What could be improved

- **Technology integration process was difficult:** Some companies faced challenges with integration with Odyssey but noted that the team was responsive in troubleshooting. Companies also found uploading data on to the platform to be operationally heavy. Odyssey recommends leveraging real-time API integrations to reduce the manual burden for both the implementors and the appliance distributors
- **Small-scale and short timeline of pilot limited training and execution quality:** Distributors noted that the short pilot timeline created challenges in training staff, developing pricing structures, and aligning internal systems. They also highlighted that the implementation effort was significant relative to the US$125K funding available to them

Program delivery can be improved through adequate team resourcing, built-in timeline buffers, and third-party data collection

- The program team should be **adequately resourced, with clear roles and responsibilities** to ensure accountability and ownership of specific outcomes (for example, monitoring, evaluation and learning or MEL)
- **One dedicated point of contact should manage all distributor communications** to ensure clarity, consistency, and faster issue resolution

- **Program timelines should include a pre-sales phase** or buffer to finalize payment terms, integrate APIs or CRMS, approve payment plans, and formalize distributor contracts to ensure timely implementation
- In the pilot, these activities overlapped with the sales period, leaving the teams with less time to focus on sales

- **A third-party sample-based approach might be more effective for data collection.** Data collection remained burdensome during the pilot, as appliance distributors were responsible for data collection.
- Given that distributors are not survey experts, the program may have overestimated their ability to gather high-quality, usable data. A third-party was brought in for an independent assessment for more robust impact measurement

Leveraging technology will be key to enhancing operational efficiency, particularly as the program scales

Reducing manual burden: Technology platforms can significantly reduce administrative workload for both the distributors and for the program team by automating both push and pull data functions. Push automation enables the system to send notifications, data requests, and information requirements to distributors and customers in real time. Pull automation allows platforms to extract and synchronize data such as appliance usage, consumption patterns, and preliminary claims directly from connected systems, improving accuracy and reducing turnaround time for verification and disbursement

Providing proxies for impact: Usage data from connected appliances can serve as a strong proxy for impact measurement. Real-time data capture allows monitoring of parameters like energy consumption, which can be extrapolated to estimate outcomes such as emission reductions or cost savings. For instance, every kilowatt-hour of electricity used by an electric stove can be converted into an equivalent reduction in biomass or coal usage, translating into measurable savings in fuel costs and increased disposable income for households

Strengthening credit scoring: By integrating data on purchase history, repayment behaviour, energy consumption patterns, and business performance, technology platforms can generate alternative credit profiles for customers who lack formal financial histories. This data-driven approach enables more accurate risk assessment, potentially reducing the price of risk and hence expanding financing access to women

Technology and automation can be embedded across multiple stages of the program

Automate regular reminders
Distributors need timely nudges and oversight on tasks such as data collection, milestone deadlines, and reporting requirements to stay aligned

Enable rolling claims
Introduce a rolling claim process to shorten timelines and allow distributors to correct errors early, rather than waiting until all claims are uploaded. This also reduces back-and-forth on errors, as early validation through rolling claims helps catch issues sooner and accelerates the overall process

Automate claim generation
Since sales data is captured through the CRM, additional information critical to disbursement (e.g., program under which appliance is sold, if applicable) should be captured as the end-user is onboarded to enable the platform to auto-generate claims for distributor validation, significantly reducing manual effort

Build disbursement validation into the system
Eligible customers should be validated and disbursement amounts should be automatically calculated based on CRM integration data and predefined payment schemes, making payouts faster and more transparent

Conclusion

The RBF generated early de-risking evidence that may strengthen distributors' ability to raise commercial capital

Strengthened Investor Confidence Through Performance of Customer Segment

- Demonstrated **repayment performance** of women customers
- Provided evidence that **productive-use appliances can be commercially viable** for women entrepreneurs

Validated New Markets and Business Models

The pilot allowed distributors to test new models such as:

- **Marketing material tailored** to women customers
- Women-focused **distribution** channels
- Hub or **community-based sales models**
- New **product configurations and financing structures**

Generated Impact Evidence Attractive to Gender and Impact Investors

The programme generated evidence on:

- Women's **income** generation / savings increase
- **Time** savings / productivity benefits
- **Health** and other outcomes

The RBF gave distributors an opportunity to build greater confidence in women as a customer segment, test and refine ways to reach and serve that segment, and generate concrete evidence of impact on women's income, time savings, and health. This will help strengthen their track record as businesses and can support future fundraising efforts, particularly with gender-lens and other impact-oriented investors.

The RBF design was based on the hypothesis that supporting distributors to better target women and improving upfront affordability would enable women to generate income and repay over time

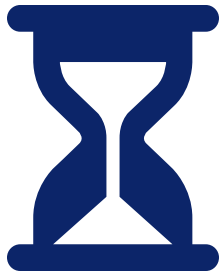
The pilot validated our hypothesis:

Distributors noted that they have continued to **leverage strategies to increase women's participation** in their customer base, informed by pilot learnings

Third-party impact assessment data shows that **30% of women who were previously approached to purchase the appliance did not do so due to the high price** prior to the pilot

Third-party impact assessment data shows that **81% of women reported a slight or significant increase in income** as a result of using the appliance

The assessment not only confirmed our hypothesis but also highlighted additional learnings around gender outcomes



Time impacts on women were mostly positive

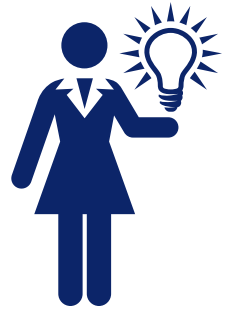
While 57% of women reported spending less time on business activities due to improved efficiency and reliable power supply, 26% reported spending more time. This increase was largely driven by positive factors such as expanded customer base, higher demand, and extended business hours, which contributed to higher incomes

All appliances appear to have improved health outcomes for women and / or their families

77% of women across all appliances types reported that their and / or their families' health has improved as a result of using the appliances. For clean cooking customers, this was driven mainly by improved respiratory health and a smoke-free environment

Appliances strengthened women's financial resilience

77% of women reported an improved ability to save as a result of using the appliance, suggesting that income gains translated into stronger financial resilience for women and their families

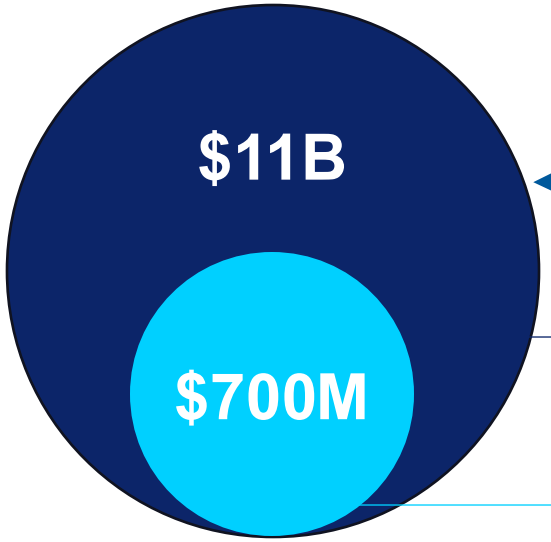


Women had greater control over appliance income than purchase decisions

Except for with cookstoves (where the appliance price was already relatively affordable), women reported having greater decision-making power over income generated from the appliance than they had over the initial purchase decision

The market for renewable energy powered income-generating appliances is still nascent and requires subsidy to scale

Even though the productive use of energy market in Sub-Saharan Africa appears large in theory, the realizable demand is severely constrained by affordability and access to finance[1]



Additionally, ~940 million people in sub-Saharan Africa lack access to clean cooking[2], but almost 66% of sub-Saharan Africans would need to spend more than 10% of income[3] to adopt clean cooking solutions

Addressable market in pumping, cooling, and processing in Sub-Saharan Africa

Serviceable market factoring in affordability

The serviceable market is expected to expand as equipment costs decline with technological advancements and scale efficiencies, and as farmers' incomes increase alongside broader economic growth

Sustainable subsidies are essential for distributors to reach scale and serve lower-income customers, especially women

Subsidies play a critical catalytic role in de-risking business models and market entry strategies that expand the market by unlocking new customer segments, which in turn helps reduce unit costs through economies of scale, making otherwise high-cost productive-use appliances more affordable and sustainable in the long run

Women's ownership of productive-use appliances remains strikingly low underscoring the need for business model innovation, targeted incentives, and financing models to engage this underserved segment and deepen overall market scale

There is a clear pathway to financial sustainability, as productive-use appliances generate income and improve livelihoods once initial affordability barriers are addressed.

Source: 1- Beyond the Grid Africa; 2- Clean Cooking; 3- IEA

Annexure

CrossBoundary Advisory

Annexure | Income increase - Overall

Assumptions

- Based on data collected by distributors from customers, the average **monthly income for customers was US$171**
- **81% of women indicated that their income increased** (29% “Very Much” + 52% “Slightly”)
- Amongst those who indicated an increase, the distribution was:
  - 0-25% (median is 12.5%) = 31%
  - 26-50% (median is 38%) = 29%
  - 51-75% (median is 63%) = 27%
  - 76-99% (median is 87.5%) = 10%
  - Over 100% (median is 125%) = 3%

Calculations

- Expected % uplift among customers who reported gains:
  - = (3%×125%) + (10%×87.5%) + (27%×63%) + (29%×38%) + (31%×12.5%)
  - **= 44.4%**
- Expected % uplift across income-generating customers
  - = 0.81 × 44.4%
  - **= 36%**
- Monthly income uplift
  - = $171 × 36%
  - **= $61.6 per month**

Source: Data collected by appliance distributors, 60 Decibels Impact Assessment

Data collected by 60dB is identified by their logo

Annexure | Income increase - BURN

Assumptions

- Based on data collected by distributors from customers, the average **monthly income for customers was US$123**
- **84% of women indicated that their income increased** (26% “Very Much” + 58% “Slightly”)
- Amongst those who indicated an increase, the distribution was:
  - 0-25% (median is 12.5%) = 41%
  - 26-50% (median is 38%) = 26%
  - 51-75% (median is 63%) = 23%
  - 76-99% (median is 87.5%) = 9%
  - Over 100% (median is 125%) = 1%

Calculations

- Expected % uplift among customers who reported gains:
  - = (1%×125%) + (9%×87.5%) + (23%×63%) + (26%×38%) + (41%×12.5%)
  - **= 38.6%**
- Expected % uplift across income-generating customers
  - = 0.84 × 38.6%
  - **= 32.4%**
- Monthly income uplift
  - = $123 × 32.4%
  - **= $39.9 per month**

Source: Data collected by appliance distributors, 60 Decibels Impact Assessment

Data collected by 60dB is identified by their logo

Annexure | Income increase – Farm Warehouse

Assumptions

- Based on data collected by distributors from customers, the average **monthly income for customers was US$84**
- **78% of women indicated that their income increased** (48% “Very Much” + 30% “Slightly”)
- Amongst those who indicated an increase, the distribution was:
  - 0-25% (median is 12.5%) = 14%
  - 26-50% (median is 38%) = 17%
  - 51-75% (median is 63%) = 41%
  - 76-99% (median is 87.5%) = 28%
  - Over 100% (median is 125%) = 0%

Calculations

- Expected % uplift among customers who reported gains:
  - = (0%×125%) + (28%×87.5%) + (41%×63%) + (17%×38%) + (14%×12.5%)
  - **= 58.5%**
- Expected % uplift across income-generating customers
  - = 0.78 × 58.5%
  - **= 45.7%**
- Monthly income uplift
  - = $84 × 45.7%
  - **= $102.7 per month**

Source: Data collected by appliance distributors, 60 Decibels Impact Assessment

Data collected by 60dB is identified by their logo

Annexure | Income increase - Koolboks

Assumptions

- Based on data collected by distributors from customers, the average **monthly income for customers was US$295**
- **76% of women indicated that their income increased** (33% “Very Much” + 43% “Slightly”)
- Amongst those who indicated an increase, the distribution was:
  - 0-25% (median is 12.5%) = 32%
  - 26-50% (median is 38%) = 17%
  - 51-75% (median is 63%) = 31%
  - 76-99% (median is 87.5%) = 14%
  - Over 100% (median is 125%) = 6%

Calculations

- Expected % uplift among customers who reported gains:
  - (6%×125%) + (14%×87.5%) + (31%×63%) + (17%×38%) + (32%×12.5%)
  - **= 49.7%**
- Expected % uplift across income-generating customers
  - = 0.76 × 49.7%
  - **= 37.8%**
- Monthly income uplift
  - = $295 × 37.8%
  - **= $111.5 per month**

Source: Data collected by appliance distributors, 60 Decibels Impact Assessment

Data collected by 60dB is identified by their logo

Annexure | Income increase - SunCulture

Assumptions

- Based on data collected by distributors from customers, the average **monthly income for customers was US$184**
- **79% of women indicated that their income increased** (24% “Very Much” + 55% “Slightly”)
- Amongst those who indicated an increase, the distribution was:
  - 0-25% (median is 12.5%) = 21%
  - 26-50% (median is 38%) = 43%
  - 51-75% (median is 63%) = 25%
  - 76-99% (median is 87.5%) = 6%
  - Over 100% (median is 125%) = 5%

Calculations

- Expected % uplift among customers who reported gains:
  - (5%×125%) + (6%×87.5%) + (25%×63%) + (43%×38%) + (21%×12.5%)
  - **= 46.2%**
- Expected % uplift across income-generating customers
  - = 0.79 × 46.24%
  - **= 36.5%**
- Monthly income uplift
  - = $184 × 36.5%
  - **= $67.2 per month**

Source: Data collected by appliance distributors, 60 Decibels Impact Assessment

Data collected by 60dB is identified by their logo

Annexure | Income Upliftment Calculations

Distributor	Income Uplift per month ($) (X)	Useful Life of Appliance* (Y)	Number of Women Customers (Z)	Cumulative Income Uplift (A=X*Y*Z)	Cost of Appliance ($) (B)	Churn (C)	Estimated Economic Upliftment (A-B)*(1-C)
BURN	39.9	24	1737	**1,663,351**	**164**	**0.83%**	**1,649,383**
FarmWarehouse	102.7	60	130	**801,060**	**1423**	**16.5%**	**667,697**
Koolboks	111.5	60	231	**1,545,390**	**1475**	**5.2%**	**1,463,631**
SunCulture	67.2	36	396	**958,003**	**831**	**14%**	**823,168**

$4,603,879

Additional income generated over useful life of appliances

**Estimated useful life*