

SCALE.up

Operations Manual

Icon overview

Type of energy



Electric energy



Thermal energy

Energy types; difference made within the sector



Cooking energy



Electrification

Infrastructure/technologies



Grid



Mini-grid



Standalone off-grid



Cookstoves



Biogas digesters

Source of energy



Solar



Hydro



Biomass



Biogas



Wind energy

Strategic topics



Financial savings



Energy-efficient technology



Productive use of energy



Inclusion / Leave-No-One-Behind



Economic development



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1. Project Background

1.1 Context

The Government of Rwanda National Strategy for Transformation (NST1) aimed to achieve universal electricity access by mid-2024. Although this goal was not fully achieved, significant progress has been made with a connectivity rate, 77% as of June 2024¹ from just 6% in 2009. Despite that, low household (HH) electricity consumption remains a challenge, averaging only 16.8 kWh per month² just above the lifeline tariff. This low usage impacts the financial returns from electrification of the national utility “Rwanda Energy Group (REG)”.

In clean cooking, the NST 1 targeted reduction in biomass use from 83% to 42% of HHs relying on firewood. However, by the end of 2023, 67% of HHs were still using traditional cooking methods.³ In response, the government banned stove sales below Tier 3 from the beginning of 2024 and now actively promotes Tier 5 technologies like electric Cooking (eCooking) and liquid petroleum gas (LPG), especially in urban areas.

eCooking can help address multiple NST objectives by reducing biomass use for cooking and simultaneously increasing household electricity consumption. Studies conducted by Sustainable Energy for All (SEforAll)⁴ and Modern Energy Cooking Services (MECS)⁵ show that eCooking is already cost-competitive with charcoal and LPG, especially in urban and peri-urban areas. Yet only 1% of Rwanda HHs currently use eCooking, largely due to perceptions of electricity being expensive and that it seemingly changes the taste of food.

1.2 SCALE.up Overview

The project “*Sustainable eCooking Access to Leverage Electricity Uptake (SCALE.up)*” aims to address three structural challenges in the energy landscape in Rwanda: the continuous and high use of biomass for cooking, the very low consumption of electricity at household level, and the pending need to review and consider adjusting the residential tariff structure to ensure financial sustainability.

Designed to test a financial rebate system for eCooking – based on every kilowatt hour (kWh) consumed for cooking – the project expects to see a substantial uptake of eCooking usage and kWh consumption. In combination with a proposed carbon financing approach, EnDev expects that such a project design can be translated into an eCooking tariff approach that would enable the Government of Rwanda (GoR) to boost eCooking through sustainably-financed tariff reform.

The project combines grid densification and eCooking interventions, targeting beneficiaries in urban and peri-urban areas. These areas were identified using data from the National Institute of Statistics Rwanda (NISR) and surveys conducted by SEforAll, which highlighted high charcoal costs and usage, the need for grid electrification fill-in, and reliable grid service quality.

The grid densification intervention targets to reach particularly female-headed HHs, and thereby contributes to closing the gender electrification gap in Rwanda. Up to 300 of the 2,750 newly electrified HHs will receive incentives to participate in the eCooking intervention.

¹ [Access \(reg.rw\)](https://www.reg.rw)

² World Bank (2023), Rwanda Beyond Connections: Energy Access Diagnostic Report Based on the Multi-Tier Framework, Kigali.

³ World Bank (2023).

⁴ SEforALL (2023), Rwanda Clean Cooking: Pathways and Implementation, Sustainable Energy for All, Vienna.

⁵ MECS (2022), Rwanda eCooking Market Assessment, Modern Energy Cooking Services, Loughborough.

2. The SCALE.up RBR Facility

The eCooking intervention of SCALE.up, with the SCALE.up RBR Facility at its core, will start in October 2024 and will continue until June 2025. This operations manual applies specifically to the eCooking intervention.

2.1 Objective of the RBR facility

Through a Results-Based Reimbursement (RBR) scheme, the facility seeks to decrease dependence on biomass used for cooking by facilitating household access to eCooking solutions. The project fosters the market-based distribution and uptake of metered eCooking devices, specifically of induction plates and Electric Pressure Cookers (EPCs). At its core, this initiative will enhance access to eCooking solutions and electricity consumption through a financial rebate system that provides incentives based on the electricity units (kWh) consumed for cooking on the promoted technology. The eCooking RBR will be funded and implemented by EnDev Rwanda in partnership with private sector.

2.2 Results-Based Reimbursements (RBR)

RBR (an application of Results-Based Financing, or RBF) is a modality where a funder (whether a donor, an implementing organisation, a national government, or other institution) disburses funds to a recipient (in this case a private cookstove company) upon achieving and successfully verifying the pre-agreed set of results. This approach involves three key principles:

1. Reimbursements are made only after the results are achieved.
2. The recipient may independently choose how to achieve those results.
3. Lastly, independent verification of results is the trigger for disbursement.

The SCALE.up RBR will work in a such flow as in below steps:

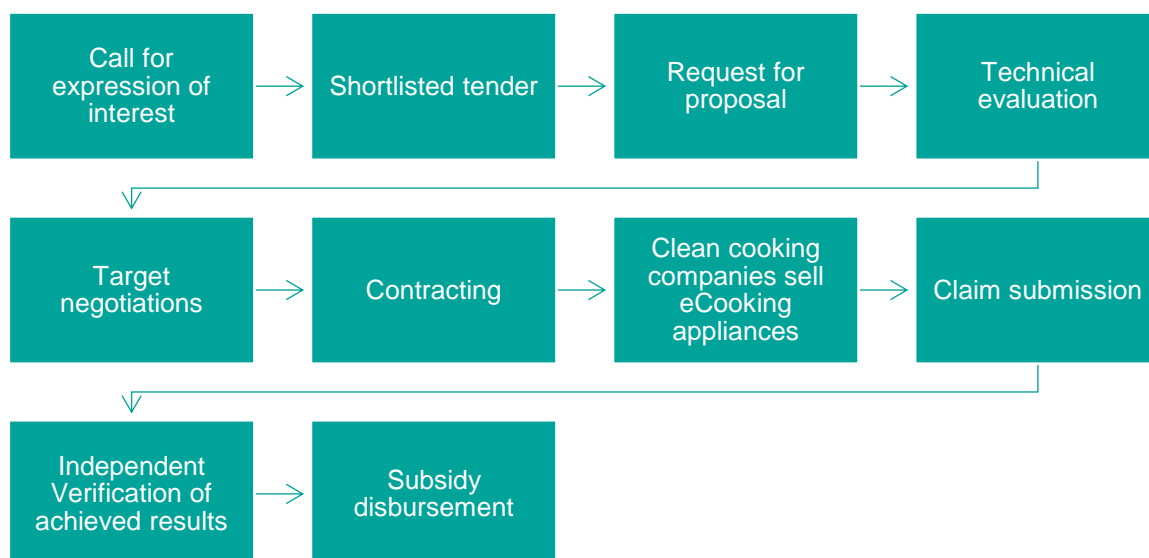


Figure 1. RBR Implementation Workflow

2.3 RBR facility Implementation Stakeholders

EnDev Rwanda

Responsible for overall coordination, management, and oversight of the eCooking RBR interventions in Rwanda. EnDev will avail the RBR funds, recruit the Independent Verification Agent, support awareness raising at different levels, the development of a tariff roadmap and carbon market readiness assessment.

The Independent Verification Agent (IVA)

This is an external and independent organisation recruited to perform phone and field verification to confirm that all sales are made to beneficiaries triggering the incentive disbursement.

Participating companies

Eligible companies are selling eCooking appliances to the project beneficiaries, engage the customers in the pre-agreed districts and provide the sales and kWh consumption data to the IVA and EnDev. Companies are responsible to report sales in a timely manner to EDCL to avoid double-subsidization.

Energy Development Corporation Limited (EDCL)

EDCL will verify customer eligibility on behalf of companies that do not have direct access to the Eligibility Tool. Sales under the RBR will be recorded by EDCL to avoid double-subsidization of households through other cooking programmes.

2.4 Types of incentives

The total RBR grant value of the project is €144,000 and covers incentives for 1,600 eCooking appliances. The subsidy will be paid based on pre-agreed results outlined in the contract, and disbursement will occur after an Independent Verification Agent (IVA), contracted by GIZ, successfully verifies the sales. There are three types of support provided through the RBR facility.

- **eCooking subsidy:** A 60% demand-side subsidy per appliance (max. 66,000 RWF) shall be paid to the participating company upon successful verification of customer enrolment (1st IVA cycle).
- **eCooking electricity rebate (per kWh):** A rebate per kWh of eCooking appliance consumption will be provided to the participating companies. These companies, in turn, will apply an equivalent reduction to the household repayment instalments (e.g. PAYGO). The evaluation of electricity consumption will be obtained from the built-in or external tamper-resistant smart meters installed on the eCooking appliances.
- **Metering solution support:** Supply-side support mitigating the additional costs of metering, will be paid to the companies at the end of the project period, on the basis of data and successful verification (2nd IVA cycle).

The payment structure is detailed in the table below.

Category of incentive	Total target	Incentives per unit in RWF (EUR for reference*)	Incentives type	Criteria for acceptance	Verification and disbursement timeline	Deadline
eCooking subsidy	1,600	60% of retail price / Max. 66,000 RWF (EUR 47.33)	Demand side subsidy (benefitting the end-user)	Phone and field verification report	Quarterly	Last sales until 30 March 2025 - to be submitted beginning of April 2025

eCooking electricity rebate	kWh consumption (as per metered devices)	105 RWF/kWh (EUR 0.07529)	Demand side subsidy (benefitting the end-user, e.g. discount on PAYGO payment)	Data verification and spot checks	Quarterly	Last rebate to be paid until 30 May 2025
Metering solution support	1,600	14,000 RWF (EUR 10.04)	Supply side subsidy	Phone and field verification report	One disbursement at the end of the project	To be paid to companies by GIZ after the final verification and after the contract end date

Table 1. Payment structure and submission deadlines

*The exchange rate used in the above unit incentive is based on the [InforEuro, le taux de change de l'euro \(europa.eu\)](https://www.inforeuro.eu/) exchange rate in July 2024.

2.5 Product eligibility

eCooking appliances eligible to be sold under this RBR facility are “Electric Pressure Cookers (EPC)” and “Induction cooktops” that meet Tier 5 stove performance indicators. The eCooking appliance must be paired with a built-in or external smart-meter to exclusively record kWh consumption of cooking sessions.

General eCooking performance specifications and standard compliance

- Thermal efficiency $\geq 70\%$
- Authentic laboratory test certificate for eCooking device
- Each product (i.e. induction stove or EPC) should be provided with a user manual providing guidance on the utilization of appliance translated in Kinyarwanda, French and English
- Electric pressure cookers and Induction cooktops that meet with:
 - IEC 60335-1: Standard for safety of household and similar electrical appliances
 - IEC 60335-2: general requirements for specific types of appliances, including household appliances

EPCs

- Alternating Current (AC) EPC compatible with electrical parameters used on Rwanda’ s national grid, with medium to large sized capacity (of at least 6 liters pot capacity), with two removable pots, an insulated lid, timer setting, provided with at least one year warranty.

Induction cooktops

- AC induction cooktop compatible with electrical parameters used on Rwanda’ s national grid, with a package of conductive cookware, double stoves, a time setting, auto off program, magnetic field below EMF limit, provided with at least one year warranty.

eCooking smart meter specifications

- Ability to be monitored and to retrieve real data remotely,
- Meter tamper detection mechanism to prevent unauthorized devices to be connected,
- Ability to provide data real-time on cooking time, disaggregated electricity consumption data (kWh/event).

2.6 Targeted households

The project aims to test a financial rebate system for eCooking, rewarding households based on the kilowatt hours (kWh) consumed for cooking. It targets urban and peri-urban households, encompassing a total of 1,600 households. The initiative is expected to significantly increase both eCooking usage and kWh consumption among these households.

2.7 Eligible districts and households

The project is targeting urban and peri-urban areas in the 11 districts, namely, Nyarugenge, Kicukiro, Gasabo, Kamonyi, Muhanga, Ruhango, Rubavu, Musanze, Kayonza, Bugesera, and Rwamagana. These districts have been selected due to the high price of charcoal and the substantial number of charcoal users, making them ideal candidates for transitioning to eCooking.

As the project aims to promote eCooking also beyond the boundaries of Kigali City, successful companies can claim a maximum of 40% of the allocated sales in Kigali (Gasabo, Kicukiro and Nyarugenge). The participating company is responsible for verifying that the customer did not benefit from another subsidized improved cookstove and resides in an eligible district, using the existing EDCL Eligibility Tool.

Companies which do not have access to the EDCL Eligibility Tool are required to confirm the eligibility of the household with a designated EDCL focal point before selling the appliance to the customer.

2.8 Company eligibility

- Legally registered in Rwanda as a company operating in the energy sector,
- Valid RSSB and RRA certificates,
- Willingness and capacity to reach out to customers located in Nyarugenge, Kicukiro, Gasabo, Kamonyi, Muhanga, Ruhango, Rubavu, Musanze, Kayonza, Bugesera, and Rwamagana districts,
- Experience in eCooking promotion and market development,
- Experience in managing and scaling similar projects in Rwanda
- Financial and operational capacity to support the project, including the pre-financing ability toward RBR implementation
- Ability to deploy metering mechanisms (or systems) for retrieving, through IoT device, real-time end-users eCooking usage data necessary for verification by the IVA (built-in or non-manipulable external meters)
- Existing mechanisms and capacity to honour warranty claims and to provide after sale service
- Infrastructure and staff in place to participate in the eCooking RBR facility targeting multiple beneficiaries and willingness to provide a specific lead staff member to be liaison staff with EnDev.
- Evidence of verifiable records for past sales going back 12 months
- Company's cooperation agreement with REG
- Maintain a database integrated with an API to facilitate real-time data retrieval for end-users' eCooking usage. The system should support integration with the Kobo tool, enabling data review and generation of necessary information as required.
- Ability to use EDCL Eligibility tool

3. Application and Evaluation process

EnDev/GIZ Rwanda will announce a Call for Expression of Interest (EOI) to invite qualified companies to participate in a project focused on the supply of eCooking and induction stoves. Interested companies will undergo a thorough eligibility evaluation. Shortlisted candidates will be invited to submit a detailed technical application along with the required annexes. Selected companies will be onboarded to the project and introduced to the Results-Based Reimbursement (RBR) approach.

3.1 Evaluation criteria

Upon submission of their technical applications, interested companies will undergo a thorough technical assessment conducted by EnDev. The evaluation of the technical proposals will be based on the following criteria:

- **Methodological Concept:** The quality and comprehensiveness of the project delivery strategy, including a detailed description of key processes and an operational plan aimed at achieving results, fostering learning, and encouraging innovation.
- **Project Management:** The robustness of the project management approach, including coordination with EnDev/GIZ.
- **Metering Systems:** A clear demonstration of how the company will ensure the accurate functioning of metering systems and secure the meters against tampering.
- **Gender Equality:** A clear demonstration of how the company will promote gender equality within the project across the eCooking delivery chain.

3.2 Contracting and target setting

Once a company is accepted into the project, GIZ Rwanda will handle all the necessary steps to proceed with contract signing. Ultimately, EnDev/GIZ Rwanda will provide the company with the Claim Form, and additional information regarding the claiming, verification, and disbursement processes. EnDev Rwanda will also offer the company an opportunity to attend a meeting to address any questions related to the contract and the accompanying documents.

The contract for works will be signed and companies will be required to sell a pre-agreed number of eCooking appliances. The total subsidy amount provided will be calculated based on a pre-agreed rate per appliance sold and per kWh consumed by the customer for cooking during the implementation period. It is important to note that only sales of eCooking appliances within Rwanda and under this contract will be eligible for subsidy.

Once both parties have agreed upon the terms and conditions, a designated representative from EnDev Rwanda and the company will sign the contract.

The measurable output under this contract will be the verified number of eCooking appliances sold by the company. Deadlines for sales and submission periods for verification are broadly outlined in Table 1 under section 2.4, and Figure 2 under section 3.3.2, and will be formalized during the contract kick-off. The verification methodology will be clearly explained to the shortlisted companies and included as an annex to the contract.

3.3 Claiming and verification

3.3.1 Claiming

Participating companies will be required to report sales to EnDev via email using the Claim Form. As soon as a company would like to claim, it fills out a basic Claim Form and sends it to EnDev to request the initiation of the claiming and verification process. The Claim Form contains company and product information as well as information on outcome indicators (i.e. gender, etc.) required for eCooking reporting. EnDev will provide guidance to companies on how to fill out the Claim Form if required.

3.3.2 Claim submission – Per type of incentive

Eligible sales of eCooking appliances under the RBR facility will conclude in March 2025, with rebates payments made for eligible sales until end of May 2025. Participating companies are therefore required to submit their first two subsidy claims on a quarterly basis, with the third and final claim to be submitted by June 2025.

The first two subsidy claims will cover both the eCooking subsidy and the eCooking electricity rebate, while the 3rd will cover only the eCooking electricity rebate as elaborated in the figure below. Following these submission sequence, a final claim for the metering solution support subsidy will be made at the end of the project period, to be processed and paid accordingly. Verification process for each claim submission will be detailed under section 4.

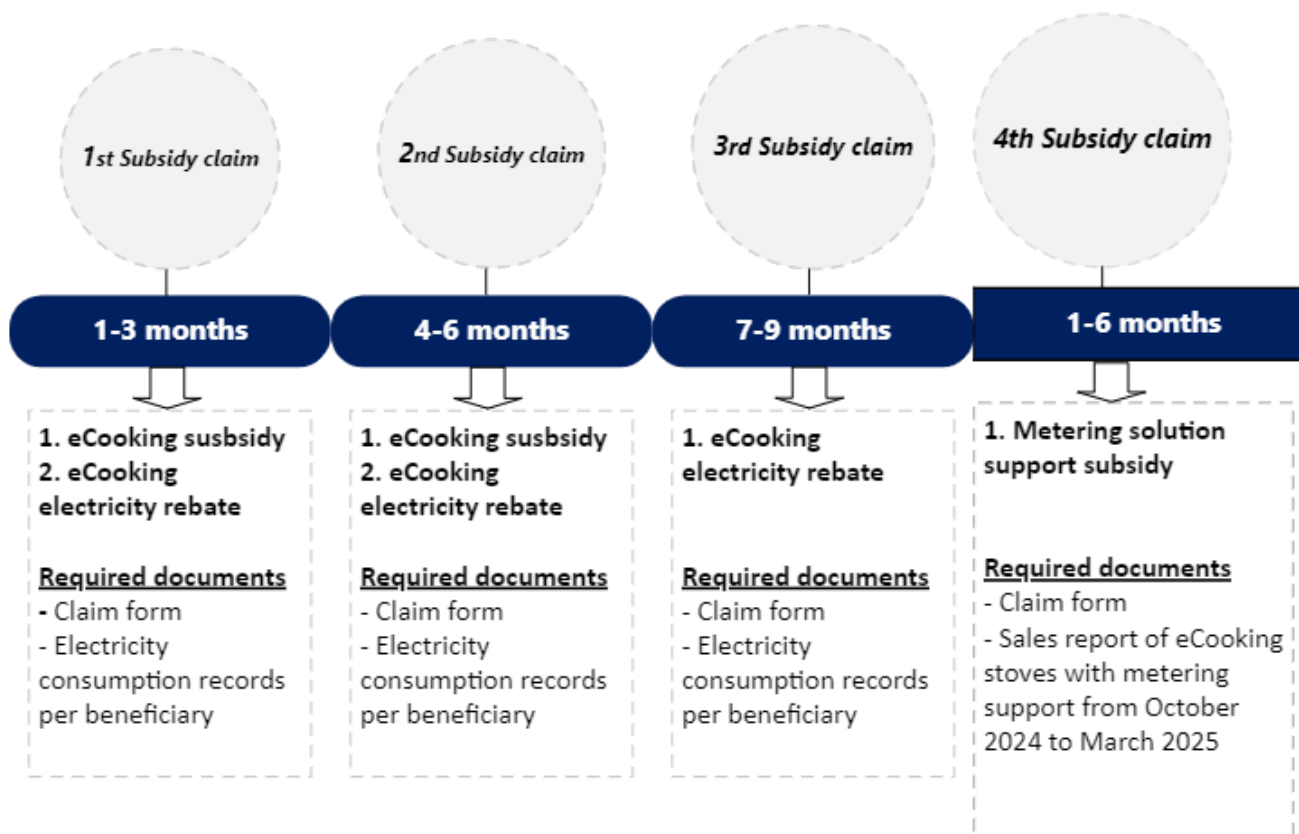


Figure 2. Claim submission periods

3.3.3 Special case: Repossessions

- The claim submission reports from participating companies must include detailed information on any returned or repossessed eCooking appliance. This should encompass all relevant details, including the dates of return or repossession and, where applicable, information on reallocation.
- In cases where an eCooking appliance is returned to or repossessed by the company for any reason during the project period, the subsequent RBR disbursements to the company will be adjusted to account for the number of returned or repossessed eCooking appliance.
- Since the sales agreements are exclusively between the company and their customer(s), the terms concerning repossession or return of eCooking appliances, including the grace period for customers to resolve defaulted payments, shall be defined and agreed upon by both parties. However, the implementation team will review the company's proposed repossession policy to ensure its fairness to both parties.
- Repossessed eCooking appliances that are re-sold to another customer will not be eligible for additional subsidies. Each eCooking appliance can only be counted or claimed once under the RBR project.

4. Claim verification

The participating company will submit a sales report (in the prescribed template provided) of eCooking appliances, along with the recorded monthly electricity consumption (in kWh) per eCooking appliance and the equivalent rebate payments to EnDev.

To ensure accurate beneficiary registration in the Clean Cooking Monitoring Information System (CCMIS) and prevent double subsidization of a households, participating companies must report their sales to EDCL on a weekly basis using the CCMIS template. This template will be automatically linked to the KoBo tool by EnDev, so companies will only need to report their sales once, avoiding the need for double reporting in both systems.

When a company wishes to submit a claim, it must complete a basic Claim Form and submit it to EnDev to initiate the verification process. The processes of claim submission, verification, and disbursement will be conducted on a quarterly basis. Upon receiving the Claim Form, EnDev will conduct an eligibility check review to ensure the form is complete, submitted within the required timeframe, and meets all necessary requirements. Following the successful completion of the initial review, EnDev will forward the claim to the IVA to initiate the phone and field verification process.

Upon completion of the verification by the IVA, EnDev will notify the company to submit a subsidy claim (in the prescribed template provided i.e. the subsidy claim form) to GIZ for payment.

4.1 Verification types

A two-cycle Independent Verification Agent (IVA) process will be conducted. Each cycle is divided into phone and field verification. The first cycle will be conducted after the sales of the eCooking appliance and the first rebate disbursements. Upon successful verification, the eCooking appliance subsidy and a partial rebate payment will take place. The second cycle will take place prior to the payment for metering solution support and will verify the correct provision of meters, metered data and the disbursement of the rebate. Additionally, EnDev will carry out a separate data verification process before issuing the quarterly reimbursements for the kWh rebate payments.

4.1.1 Phone verification

The foundation of the verification process involves a direct contact with end-users. It is therefore important that the telephone numbers provided should either belong to the end-users themselves or to individuals who can readily facilitate contact with the end-users, such as neighbours or family members.

EnDev Rwanda will engage an Independent Verification Agent (IVA) to conduct verifications and 60% of the sales submitted by each company for each claim will be verified through phone verification. The IVA will use the KoBo tool to generate the necessary end-user information for verification and will also collect verification data through the same platform.

The IVA confirms or rejects the claim by signing off on it and reporting the phone verification results to EnDev. The signed report will be the basis for EnDev to initiate the field verification process. If any proportion of the sales are not approved, the IVA will document the reasons of rejection in their report. Customers who could not be reached or customers who denied purchasing an eCooking appliance will be added to field verification sample.

4.1.2 Field verification

Once the claim has successfully passed the phone verification, the IVA will conduct the field verification on the remaining 40% of beneficiaries and to other whose sales were not cleared through phone verification. This aims to verify the performance of the eCooking appliance through a metering system, the existence of an external metering device (if applicable). Additionally, this process will help to identify challenges or issues the customer is experiencing, as well as the overall impact of the appliance.

The IVA will use the KoBo tool to generate the necessary end-user information for verification and will also collect verification data through the same platform. After completing the field verification, the IVA will submit a signed qualitative report to EnDev, presenting the findings from the customer meeting to confirm or reject the claim.

If all or part of the result is not approved, the IVA will document their reasons for rejection in their report. EnDev will give the company the chance to address those sales that were not successfully verified. If two verification attempts fail, the subsidy associated with those sales will be deducted from the overall subsidy amount to be disbursed to the company.

In cases where a customer cannot be located during field verification, despite the assistance of a company representative, the Independent Verification Agent (IVA) will notify the company by sharing the Company Feedback File. The IVA will then request a copy of the contract between the company and the customer for further verification. If the provided information is consistent and the contract is duly signed by all relevant parties, the customer will be marked as "passed." However, if discrepancies are found or there is reason to question the authenticity of the contract, the verification result will be marked as "failed." The IVA will also inform EnDev Rwanda of the outcome of the contract review and will include these results in the final report.

The field verification report will be the basis for EnDev to inform GIZ Rwanda to initiate the payment of the eCooking subsidy, electricity rebate and Metering solution support.

4.1.3 Data verification

Eligible consumptions for kWh rebate payments are those recorded in the participating company's database and the Kobo tool.

EnDev will verify whether the participating company has provided the correct rebate amount to the household, e.g. applied the correct reduction to the households' instalment payments, using the provided metered data. If the company has not reduced the instalment payments as required, the corresponding rebate amount will be deducted from the total rebate to be disbursed to the company. Refusal of the company to pay the rebate to the customer can lead to contract termination.

4.2 Spot checks (field)

EnDev may decide to conduct spot checks.

In this regard, the participating company shall:

- Inform the customer and obtain their consent to share personal data with EnDev and the IVA solely for the purpose of verifying the sale of eCooking appliance such as:
 - Name, Address, Phone number(s) of the client
 - Number and sex of household members that were trained on operation and maintenance.
- Review the EnDev report and provide comments where necessary.
- If satisfied with the EnDev report, provide a concurrence on the same.
- Fully cooperate during the EnDev spot checks.

5. Invoicing and disbursement

Upon successful verification and receipt of the signed IVA reports, EnDev will notify the participating company and request the companies to submit a subsidy claim to GIZ for payment.

5.1 Reimbursement calculation

The reimbursement shall be calculated based on the sales numbers that have passed the IVA verification. The following formulas will be used:

1. eCooking subsidy = Successfully verified sales * appliance price * 60% (max. 66,000 Rwf)
2. kWh rebate = metered kWh/month on the appliance * 105 Rwf
3. Supply side subsidy = Successfully verified metering solution * 14,000 Rwf

6. General project management

6.1 Communication

EnDev Rwanda is responsible for the official communication with the companies, to explain the RBR modalities to them, including procedures, eligibility criteria and verification procedures.

6.2 Reviews and changes

To ensure the achievement of the project objectives, EnDev Rwanda will be monitoring the project on a regular basis. The first monitoring will ideally take place 3 months after the launch of the programme.

EnDev will examine the implementation progress based on available data from verification, stakeholder interviews and other sources. Key aspects to consider include whether:

- companies are participating.
- the target population is being reached.
- the subsidy and beneficiary contribution levels are appropriate based on market developments and beneficiaries' ability to pay.
- the implementation process is efficient and effective.

If necessary, EnDev may make modifications to the program. EnDev Rwanda will write a summary report documenting the findings of the internal review as well as the decisions taken.

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