



**Republic of Liberia
Rural and Renewable Energy Agency (RREA)**



**REQUEST FOR EXPRESSION OF INTEREST Consultancy Services for Independent
Verification Agent for Results Based Finance Facilities for Stand-alone solar PV
rooftop systems, Solar Home Systems and Isolated Mini Grids**

(CONSULTING SERVICES – FIRM SELECTION)

Liberia Electricity Sector Strengthening & Access Project (LESSAP) II

Contract Reference No: LR-RREA-480460-CS-CQS

Issue Date: **May 8, 2025**

Deadline: **May 22, 2025**

1.0 BACKGROUND

The Government of Liberia, through the Rural and Renewable Energy Agency (RREA), is implementing Phase II of the Liberia Energy Sector Strengthening & Access Project (LESSAP II), supported by the World Bank. This phase focuses on accelerating off-grid electrification to achieve universal electricity access by 2030 under the National Electrification Strategy (NES), using both grid and off-grid solutions. To reach underserved rural populations, the NES outlines a least-cost approach that includes mini-grids, stand-alone solar systems, and electrification of public institutions. Under this framework, the World Bank is supporting Liberia through the multi-phase Liberia Energy Sector Strengthening and Access Project (LESSAP). The current phase (LESSAP II) focuses on accelerating off-grid access through public-private partnerships, with targeted support for schools, health facilities, households, and productive uses of energy. This effort aligns with the Government's Mission 300 initiative and broader development goals under the ARREST Agenda.

2.0 OBJECTIVE OF THE ASSIGNMENT

The objective of the assignment is to conduct an independent verification of connections claim made as per specified milestones under results-based financing mechanisms, where:

- **Integrated solar home system kits for productive use of energy and households' electrification:** distributed/installed and claimed systems are confirmed (through various verification means) to exist, being in use by the specified end users and are functional as per warranty terms & conditions and service contracts. The verifications will serve as a trigger for disbursements by RREA LESSAP II PIU to the participating off-grid companies with through the Fund Manager contracted under the project. The IVA will establish validity and

correctness of the distribution/installation claims submitted by the participating off-grid companies for systems eligible under the program.

- **Stand-alone solar PV rooftop systems(public institutions through energy as a service) and isolated mini-grids:** the assignment also entails verification(through various means) of acquisition of construction permit (including relevant legal & regulatory requirements) & provisional license (as applicable), delivery of equipment at site, customer connections and quality and reliable electricity service as per regulatory requirements as required for the stand-alone solar PV rooftop systems and mini grid systems under the project.

3.0 SCOPE OF THE ASSIGNMENT:

The IVA will carry out verification activities based on agreed upon milestones, methodologies, sampling, thresholds, mix, relevant four-eye checks/approvals, verification analysis report along with requirements on pass, fail, pending, conditionally passed, inconclusive, pending, rejected, failed, exclusion following verification activities and templates with the RREA LESSAP II PIU with input from the Fund Manager, which will facilitate the implementation of the project.

The following are some suggested approaches for the verification; however, the IVA may propose improvements or alternative approaches based on best practices, level of verification risks and associated risks of fraud and understanding of the sector and the operational context for this assignment. The Independent Verification Agent (IVA) will be responsible for conducting a robust, multi-tiered verification process of claims submitted by off-grid companies under the LESSAP II Results-Based Financing (RBF) mechanism. This includes remote phone/digital verification and field visits, both guided by the Operations Manual and coordinated through the Fund Manager and LESSAP II PIU. Phone verification will involve sampling end users from off-grid company databases, confirming user identity, location, product details, payment status, and service conditions, while also assessing potential risks of fraud. The IVA will use standardized questionnaires and report findings in English, flagging cases for follow-up or rejection as needed. Where possible, real-time system data via API integration will support verification efforts.

If over 10% of sampled users are unreachable via phone, the IVA will initiate field verifications, selecting locations based on clustering and flagged concerns. Field visits will validate energy access, capture GIS coordinates, gather photographic evidence, and conduct interviews in local languages. For areas outside GSM coverage, the IVA will apply enhanced methods to minimize fraud risks. Should inconsistencies arise or claims fail system audits, a full audit will be triggered, involving a deeper review of company records and data systems to detect errors or fraud. Full details on verification methods, sampling strategies, and reporting requirements are outlined in the Terms of Reference (ToR).

4.0 Qualification, Experience and Competencies for Consulting firm Requirements

The consultancy firm with the following qualifications are invited to participate in the independent verification agent assignment:

- (i) The IVA will be a top tier consulting firm with services including audit, digital monitoring and system/operational performance monitoring test inspection for

- off-grid electrification infrastructure with a minimum of five (5) years operational existence as an organization.
- (ii) Minimum of two (2) similar assignments in the last five (5) years having done verification through various means for at least 5,000 solar home system connections, 500 stand-alone solar PV systems connections and 500 mini-grid connections.
- (iii) Capacity to verify transactions:
 - Demonstrated experience in verification exercises through digitally remote/phone and field means, socio-economic studies and field /on-site studies
 - Proof of audit and system & operational performance for off-grid electrification infrastructure will be essential
 - Experience in organizational and project assessments including systems review
 - Past roles in project transaction verification will be an advantage
- (iv) Ability to minimally deploy resource persons efficiently in multiple & clustered rural locations if and as necessary
- (v) The persons carrying out the tasks should be fluent in local languages and English
- (vi) Experience with the rural economy through past assignments. Familiarity with rural energy interventions will be advantageous including engagement with energy product or service providers
- (vii) Excellence in computer skills is mandatory for all proposed staff
- (viii) Ability to deploy a robust data collection and management system with capacity to track GIS coordinates for the field visits evidence of similar deployment in the past will be essential

The RREA now invites eligible Firms to indicate their interest in providing the Services. Interested Consultants must provide information indicating that they are qualified to perform the services (profile, description of similar assignments, experience in similar conditions, availability of appropriate skills, etc.) Submissions must be in a single file and should not exceed **10 megabytes (MB)** in total size.

The attention of interested Consulting firm is drawn to Section III, paragraphs, 3.14, 3.16, and 3.17 of the World Bank's "Procurement Regulations for IPF Borrowers" dated July 2016, revised November 2017, and August 2018, November 2020, September 2023 and revised in February 2025 setting forth the World Bank's policy on conflict of interest. Please refer to paragraph 3.17 of the Procurement Regulations on conflict of interest related to this assignment which is available on the Bank's website at <http://projectsbeta.worldbank.org/en/projects-operations/products-and-services/brief/>.

A Consulting Firm will be selected in accordance with Consultant Qualification Selection (CQS) method set out in the Procurement Regulations.

Further information and the detailed Terms of Reference (TOR) for the assignment can be obtained electronically at the following email addresses and Website, from Mondays to Fridays, from 0900 to 1600 hours GMT:

Email:

info@rrealiberia.org, augustinem@rrealiberia.org, samueln@rrealiberia.org, dehkonteew@rrealiberia.org, tenniej@rrealiberia.org Website: www.rrealiberia.org, stevenp@rrealiberia.org.

Expression of Interest clearly marked **Consultancy Services for Independent Verification Agent for Results Based Finance Facilities for Stand-alone solar PV rooftop systems, Solar Home Systems and Isolated Mini Grids** must be delivered in an electronic/mail copy to the address below, on or before **4:00 p.m.** Local Time, on **May 22, 2025**.

Attn: Samuel Bocay Nagbe Jr.
Executive Director
Rural and Renewable Energy Agency
LEC Sub-station, Newport Street
1000 Monrovia 10, Liberia
Email: samuelnrrealiberia.org

Electronic submission should also be copied to the following addresses:

info@rrealiberia.org; stephenp@rrealiberia.org;
augustinem@rrealiberia.org, tenniej@rrealiberia.org, dehkonteew@rrealiberia.org,
stevenp@rrealiberia.org.

Only the highest ranked firm will be issued the Request for Proposals.

Liberia Electricity Sector Strengthening & Access Project (LESSAP)-Phase II

TERMS OF REFERENCE

FOR

**Consultancy Services for Independent Verification Agent for
Results Based Finance Facilities for Stand-alone solar PV rooftop
systems, Solar Home Systems and Isolated Mini Grids**

MARCH 2025

TERMS OF REFERENCE FOR

Consultancy Services for Independent Verification Agent for Results Based Finance Facilities for Stand-alone solar PV rooftop systems, Solar Home Systems and Isolated Mini Grids Ref. No.:

1. Background

In keeping with Pillar II of the Government of Liberia's 5-year development plan (ARREST Agenda for inclusive development), electricity access has been identified as critical infrastructural enabler in promoting economic growth and development. The Government of Liberia has adopted a National Electrification Strategy (NES), embracing universal access to electricity by 2030 through grid and off-grid options. Geospatial analyses reveal that grid expansion and densification will be the least-cost options for reaching 70 percent of households by 2030, while the remaining 30 percent of households could be served by three large-capacity mini grids (5 percent of the households) 28, smaller-size community mini-grids each serving between 99 and 337 households with an average of 140 consumers (6 percent of the households), and stand-alone solar systems (for the remaining 19 percent of households). As part of the least-cost integrated approach through off-grid solutions, the NES targets electrifying 1,726 public insitutions (schools & health facilities).

An estimated US\$137 million will be required through leveraging private sector investments in off-grid solutions for large and single-community mini-grids and stand-alone solar solutions to achieve the goal of universal access to electricity by 2030. Significant progress will need to be made to support the off-grid electrification of public facilities like health facilities and schools, and strong donor coordination will be needed to mobilize the needed funding.

To accelerate off-grid electrification for households, businesses, public institutions, economic value chains (agriculture, mining/extractive, commercial & industrial etc), the Government of Liberia, through a public-private model has developed a national compact towards achieving Mission 300 targeting 75% electricity access by 2030 with the below targets:

- Providing 15,000 annual mini-grid connections between 2025 to 2030,
- Providing 25,000 annual stand-alone solar PV/solar home system connections between 2025 to 2030,
- Increasing renewable energy share of generation mix up to 75%,

- Attracting and mobilizing up to \$70M of private capital for off-grid electrification.

With funding from the World Bank, the Government of Liberia through the Rural and Renewable Energy Agency is currently implementing the off-grid component of Phase II of the Liberia Energy Sector Strengthening & Access Project, which has set the following targets:

- Off-grid electrification for 190 public institutions (schools and health facilities) through stand-alone solar PV rooftop systems, out of which 20 to be piloted through an energy as a service results-based financing mechanism,
- Off-grid electrification for 74,250 household connections and 150 productive use of energy connections through solar home systems results-based financing mechanism,
- Off-grid electrification for approximately 12 sites targeting 5,300 connections through mini-grids results-based financing mechanism,
- Attracting and mobilizing up to \$1.5m of private financing.

2. Objective of the assignment

The objective of the assignment is to conduct an independent verification of connections claim made as per specified milestones under results-based financing mechanisms, where:

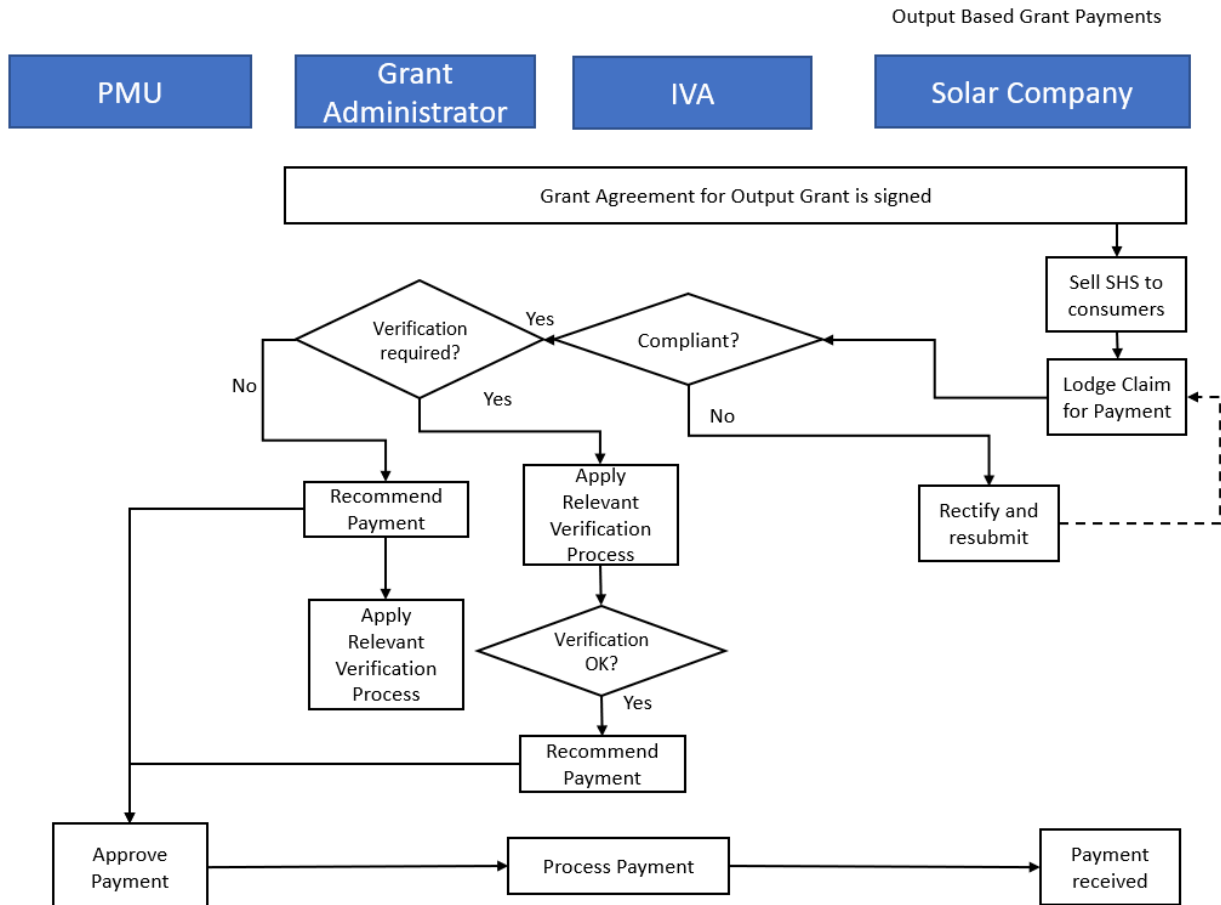
- **Integrated solar home system kits for productive use of energy and households electrification:** distributed/installed and claimed systems are confirmed(through various verification means) to exist, being in use by the specified end users and are functional as per warranty terms & conditions and service contracts. The verifications will serve as a trigger for disbursements by RREA LESSAP II PIU to the participating off-grid companies with through the Fund Manager contracted under the project. The IVA will establish validity and correctness of the distribution/installation claims submitted by the participating off-grid companies for systems eligible under the program.
- **Stand-alone solar PV rooftop systems(public institutions through energy as a service) and isolated mini-grids:** the assignment also entails verification(through various means) of acquisition of construction permit (including relevant legal & regulatory requirements) & provisional license (as applicable), delivery of equipment at site, customer connections and quality and reliable electricity service as per regulatory requirements as

required for the stand-alone solar PV rooftop systems and mini grid systems under the project.

3. Verification framework

(a) Verification process

The overall verification process is summarized below*:



*Equivalent term under the LESSAP II Project:

- Output Based Grant Payments: Results-Based Financing grant payment,
- PMU: RREA LESSAP II Project Implementation Unit
- Grant Administrator: Fund Manager
- Output Grant: Results-Based Financing Grant

(b) Levels of verification

The programme should be supported with several layers of monitoring and evaluation activity. The foundation of the system is the self-reporting by participating off-grid companies.. The following escalating, risk-based verification is suggested as a starting point for the IVA. However, the IVA candidates should specify in their proposal the recommended method of auditing based on best practices and that which balances costs with efficiency, use of digital remote tools, accuracy and reliability.

Audit Level	Name	When to apply
Audit Level 1	Telephone & digital remote sample	Combination of verification of online status of systems in GSM networks (linked API) followed by phone survey for verifying sales details.
Audit Level 2	Clustered Field sample	Apply if during a Level 1 audit, more than 10% of the customer telephone numbers called cannot be contacted.
Audit Level 3	Full participating off-grid companies and customer/beneficiary audit to include physical site visit	If there is evidence of, or concern about recordkeeping or a material/significant lack of integrity in the claims data of a participating off-grid company.

(c) Timing and triggers of independent verification

- Claims for payment of Results-Based Financing Grants may be submitted by participating off-grid companies once each month. Claims submitted between the 1st and the 15th of that month will be processed the same month otherwise the claim will be processed the following month. The minimum number of units for a claim to be considered has been initially set as at least 200 units.

- The Claims log will include a standard report format showing a summary of the number of systems by type, and a detailed database for every system / customer with full details for audit and verification to be carried out including the system model, serial number, and full customer details. The Claims log will be completed and submitted on the Odyssey Energy Solutions online platform (or other applicable results-based process management platform) which will provide a customized system for both the participating off-grid companies and the IVA for accessing the customer information and updating the verification status of the claims.
- Claims for acquisition of construction permit(including relevant regulatory & legal requirements) & provisional license (as applicable) and delivery of equipment at site for stand-alone solar PV systems and mini-grids shall be processed and verified through review of relevant documents and physical inspection at specified sites(where applicable),
- New connections of the mini grid developers may be verified remotely through smart metering for claims submitted once a month. In cases where this is not possible, e.g. connections fall outside of GSM networks, the developers may submit customer acceptance receipts that confirm satisfactory delivery of electricity to new customers a percentage of which will then need to be verified through spot checks for the claim to be complete and recommendation for disbursement to be made.

4. Independent verification activities

The IVA will report on the verification outcomes based on agreed upon milestones and templates with the RREA LESSAP II PIU with input from the Fund Manager, which will facilitate the implementation of the project.

The following are some suggested approaches for the verification; however, the IVA may propose improvements or alternative approaches based on best practices and understanding of the sector and the operational context for this assignment.

(i) Phone/digital remote Verification

- ✓ The IVA will determine and justify an appropriate phone verification strategy and sample using justifiable sampling methods based on the relevant claims.

- ✓ Verify via call spot checks specific users identified during sampling from the consumer sales database coming from the participating off-grid companies claims report.
- ✓ It is expected that participating off-grid companies working with GSM enabled products in GSM accessible areas will enable linkage of their API systems with the online platform so that the live status of the integrated system and customer connections can be verified remotely. This will provide an added layer of confidence and reduce some of the effort and therefore cost on the spot checks. However, additional information from the users will need to be provided.
- ✓ Verify the following during the phone calls:
 - That the identified person is the actual user of the products.
 - That the contact and location details of the user are correct.
 - That the user acquired the stated products including the correct product model claimed by the participating off-grid companies.
 - Total cost(subsidized) of the product to the user
 - Cumulative including Down payment/deposit/part-payment by end user,
 - Credit and repayment period (only for PayGo/consumer financing business models)
 - That the user is familiar with the product specifications and their capabilities.
 - Status of payment for the products,
 - Functionality of the integral system,
 - Maintenance & after-sales services provided as per terms & conditions of warranty condition and service contract.
- ✓ The IVA will carry out the phone interviews in a language familiar with the user
- ✓ The IVA will use a standardised questionnaire and make all reports in English.
- ✓ The phone verification process will highlight areas of doubt or further clarification and form part of the targets for field verification.
- ✓ The IVA may make recommendations for rejection of specific claims based on the phone verification process.

- ✓ The IVA will give an assessment of the likelihood of fraud, which may require further investigations.

(ii) Field verification

- ✓ Upon completion of the phone verification process, the IVA will proceed to undertake field verification if more than 10% of the customers called cannot be reached. The specific locations to be visited will be based on:
 - An appropriate sampling process for field verification taking into consideration clustering of sites.
 - Specifically identified users highlighted for follow-up during phone verification.
- ✓ The IVA will carry out a field visit to a sample of customers and do interviews with customers to verify on the spot if the customers have access to energy through the products supplied.
 - Carry out interviews in a language well understood by the user.
 - Collect answers to a set of pre-defined questions to include those from the above phone verification.
- ✓ The IVA will be required to provide GIS co-ordinates of the visited households.
- ✓ Provide photographic evidence of customers and their products.
- ✓ Customers outside of the GSM network present an added risk due to the inability for remote monitoring or verification. Hence, for to the extent that sales to these customers form part of the claim, the IVA should present a robust method of verification that minimizes the risk of fraud and collusion.

(iii) Full Audit

- ✓ If irregularities are present during the verification process of the two key methods above and the participating off-grid companies' claim(s) fails the systems audit, the IVA will proceed to conduct a full audit.
- ✓ This would entail checking the participating off-grid companies management and record collecting systems to determine whether there has been an error in

recordkeeping or whether fraudulent activities may be taking place.

5. Reporting, mediation, proposed adjustments

The IVA will document the findings and make recommendations related to both the documentations review, phone/digital remote and field verification processes.

- (i) Present the findings and recommendations of the verification exercise to the Fund Manager and to the RREA LESSAPII PIU after concluding the verification exercise.
- (ii) Submit, in the reports, pictures of customers, systems/equipment, sites during the Field Verification stage (as applicable).
- (iii) The IVA will be required to propose adjustments to the incentive claims based on verification findings. This includes increasing, decreasing or removing altogether specific claim items or categories of claim items. The IVA will thus be responsible to report errors or omissions in the claims and provide recommendations on how to deal with them. The recommendations of the IVA on the claims are not binding to the Fund Manager and RREA LESSAP II PIU ,but will be important in assisting these two entities to make informed decisions.
- (iv) The IVA will propose the percentages for thresholds for sampling, deferring/suspending a claim, based on the risk review, and taking into consideration progress made in the activities.
- (v) The IVA will provide an assessment of the likelihood of fraud which may require further investigations
- (vi) The IVA will work closely with Odyssey Energy Solutions and other applicable results-based financing process management platforms to integrate remote digital monitoring and verification processes into the online platform.

Summary of key deliverables

The IVA will submit a verification approach inception report to include the verification approach/methodology/strategy to the Fund Manager and LESSAP II PIU, which will cover:

- ✓ Sampling size and spot checks to be done through remote verification (monitoring of live systems, phone calls, etc.)

- ✓ Documentation review requirements, phone and field questionnaires for the participating off-grid companies claims,
- ✓ The questionnaires and reporting format will be reviewed and jointly pre-agreed with the Fund Manager and RREA LESSAP II PIU, before implementation
- ✓ Verification completion labelling and progress tracking to be done through the online platform Odyssey Energy and other applicable results-based financing process management platforms customized to site-specific requirements,
- ✓ Quarterly reporting to the Fund Manager and RREA LESSAP II PIU on the total number and type of claims and verifications completed for each claim.

6. Quality and performance review

The LESSAP II PIU in collaboration with the Fund Manager shall conduct periodical quality and performance review of the IVA processes, operations and outputs

7. Duration of Assignment: The initial phase of the assignment is 24 months with the possibility of extension upon satisfactory performance

8. Qualification and Experience of Firm

The consultancy firm with the following qualifications are invited to participate in the independent verification agent assignment:

- (ix) The IVA must be a top tier consulting firm with services including audit, digital monitoring and system/operational performance monitoring test inspection for off-grid electrification infrastructure with a minimum of five (5) years operational existence as an organization.
- (x) Minimum of two (2) similar assignments in the last five (5) years having done verification through various means for at least 5,000 solar home system connections, 500 stand-alone solar PV systems connections and 500 mini-grid connections.
- (xi) Capacity to verify transactions:

- Demonstrated experience in verification exercises through digitally remote/phone and field means, socio-economic studies and field /on-site studies
 - Proof of audit and system & operational performance for off-grid electrification infrastructure will be essential
 - Experience in organizational and project assessments including systems review
 - Past roles in project transaction verification will be an advantage
- (xii) Ability to minimally deploy resource persons efficiently in multiple & clustered rural locations if and as necessary
- (xiii) The persons carrying out the tasks should be fluent in local languages and English
- (xiv) Experience with the rural economy through past assignments. Familiarity with rural energy interventions will be advantageous including engagement with energy product or service providers
- (xv) Excellence in computer skills is mandatory for all proposed staff
- (xvi) Ability to deploy a robust data collection and management system with capacity to track GIS coordinates for the field visits evidence of similar deployment in the past will be essential

9. The Consultant shall provide the following experienced personnel to carry out the assignment with the following minimum qualifications:

Coordinator:

The Coordinator should have at least a higher education degree in Auditing and system & operational performance test inspection for off-grid electrification infrastructure, with eight (8) years of experience and be able to show leadership skills for backing the team and reporting clearly on the outcomes for that period.

Senior Off-grid Energy Systems Auditor & Performance Monitors:

Two *Senior Off-grid Energy Systems Auditor & Performance Monitors* with at least a degree in Solar Photovoltaics Energy Engineering and Auditing with five (5) years of experience in similar activities. The *Senior Off-grid Energy Systems Auditor & Performance Monitor* will primarily use desk/digital remote verification methods using the submitted claims on the online

platform and the systems' live status (where applicable). They will liaise and work with the field resource team as applicable.

Field verification specialists:

The deployment of resource specialists in the field will depend on the escalating method of verification and need for physical verification visits (in cases where remote verification is not sufficient and e.g. for sales areas with no GSM coverage). The candidate firm should propose this based on the scope and the envisaged level of effort (see below) for this assignment.

The team will need to demonstrate clear capacity for managing risk in the field related to all aspects especially on integrity and plan for preventing collusion possibilities.

10. Budget and Level of Effort

The applicant will propose, in its IVA role application, average granular fee/rates based on cost per verification for solar home systems connections specifically for productive use of energy appliances as well as for household electrification, stand-alone solar PV system connections and mini-grid claims/connections per verification milestones considering verification methodology & threshold and staff expertise time inputs.

Based on budget availability, it is expected that as part of the first phase of the assignment (24 months) the IVA will make cumulative verifications for the below RBF targeted connections below:

- **Stand-alone solar PV rooftops for public institutions through energy-as-a-service:** approximately 10 out of 20 connections,
- **Mini-grids:** approximately 6 out 12 mini-grid sites targeting 2,650 of 5,300 connections.
- **Solar home systems for productive use:** initially 75 out of 150 productive use of energy connections, but which might exceed following decision on total allocation of RBF funding portfolio for productive use connections under LESSAP II,
- **Solar home systems for household electrification:** initially up to 12,759 out of 42,530 connections jointly claimed from EnDev's demand-side subsidy program as well as LESSAP I's supply-side subsidy program shall be verified as per the LSHS-RBF Operations Manual requirements on verification methodology, verification sampling, verification threshold, verification mix per methodology, relevant four-eye checks/approvals and verification analysis report requirements,

along with requirements on pass, fail, pending, conditionally passed, inconclusive, pending, rejected, failed, exclusion following verification activities etc. This initial threshold of claims verification might however be exceeded following decision on total allocation of RBF funding portfolio for households electrification connections under LESSAP II.

However, the number of actual verifications and the precise workload will depend on the level of participation by the private sector and meeting of the eligibility criteria and connection targets of the program.

As part of the financial proposal, the firm should also propose an average fee amount for a single monthly verification in line with the level of effort required from its resource persons (defined above)

The workload is expected to be lighter in the initial stages of project implementation, but will gradually increase during the implementation period.

11. Terms of Payment:

The Consultant shall be paid within a period not exceeding 7 official working days on a quarterly basis following the submission, review and clearance of an invoice including remuneration costs based on agreed granular fee/rates based on cost per verification per verification methodology and number of connections verified and reimbursable costs based on pre-approved reimbursable costs incurred directly relevant to the assignment.

12. Reporting requirements:

The Consultant shall report to LESSAP II Project Implementation Unit including the SHS RBF Specialist, Minigrid RBF Specialist through the Fund Manager.

13. Selection process

Consultant will be selected in accordance with the Consultants Quality and Cost-based Selection (QCBS) set out in the Procurement Regulations of February 2025 (sixth edition).