



THE KENYA POWER AND LIGHTING COMPANY PLC

CONSULTANCY SERVICES

TERMS OF REFERENCE

**PROJECT NAME: RETROFITTING OF DIESEL MINI GRIDS WITH
RENEWABLE ENERGY IN KENYA**

**TITLE OF CONSULTANCY SERVICES: SUPERVISION AND MANAGEMENT OF
WORKS CONTRACT FOR THE PROJECT FOR RETROFITTING OF DIESEL
MINI GRIDS WITH RENEWABLE ENERGY IN KENYA**

RFP NO: KP1/6A.1/RFP/2/24/B21

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1.0 Background

The Kenya off-grid program to electrify remote centres has been running since early 80's. Until very recently all sites were run 100% on diesel generator sets.

AFD is supporting the Ministry of Energy (MoE) and The Kenya Power and Lighting Company PLC (KPLC) to transition five (5) existing Diesel Plants to Hybrid of Diesel and Solar PV plants that will maximize the use of renewables in order to lower fuel costs and carbon emissions into the atmosphere, effectively lowering cost of generation and improving sustainability.

KPLC has conducted technical studies on five (5) plants and is already implementing the program in four (4) pilot sites namely Eldas, Elwak, Merti and Habaswein. The fifth site, Wajir, is pending tendering and implementation.

This request for proposal by KPLC aims to recruit four (4) individual consultants; Lead Consultant, Solar PV expert, Civil Engineer, and Social and Environment Expert.

The following table shows the rating of the ongoing sites as well as the proposed Wajir site.

Plant	Solar Size	Gen Set sizes	Delivered Power per GenSet	Arrangement on GenSets
Eldas	300kWp	400kVA	2No. x 135kVA 2No. x 65kVA	-2DGs of Pnom/3 -2DGs of Pnom/6
Elwak	1,000kWp	1350kVA	2No. x 455kVA 2No. x 225kVA	-2DGs of Pnom/3 -2DGs of Pnom/6
Habaswein	800kWp	1090kVA	2No. x 365kVA 2No. x 180kVA	-2DGs of Pnom/3 -2DGs of Pnom/6
Merti	250kWp	270kVA	2No. x 90kVA 2No. x 45kVA	-2DGs of Pnom/3 -2DGs of Pnom/6
Wajir (proposed)	8,000kWp	5,100kVA		-2DGs of Pnom/3 -2DGs of Pnom/6

This project aims to integrate renewable energy sources with conventional diesel generators to reduce fuel cost, provide reliable and sustainable power generation, in addition to reducing carbon emission to the atmosphere. To ensure the successful implementation of this innovative project, the Client seeks to engage a qualified Consultant to manage the project with diverse stakeholders.

2.0 Objectives of the services

The primary objective of this Consultancy is to provide expert guidance and oversight throughout the various stages of the project; from design to implementation and commissioning.

The Consultants will ensure that the Hybrid Diesel-Solar PV plants are implemented as per available design documents and that the project meets the main goals of fuel cost savings, reliability, sustainability, and cost-effectiveness.

3.0 Scope of Services, Tasks (Components) and Expected Deliverables

The scope of service for each individual consultant includes, but not limited to the following tasks:

3.1 Lead Consultant Hybrid Diesel /Solar PV Generation Plant

- Conduct a comprehensive review of the ongoing site works contract, specifications, detailed designs and ESIA's vis-a-vis actual site works determine the optimal execution plans within the project timelines.

- Overall supervision of all ongoing works including civil works, Solar PV plant installations, Diesel Generator installations, testing and commissioning of the entire hybrid plants in the four sites.
- Review already drafted detailed technical specifications, including equipment requirements, performance criteria, and integration strategies for the hybrid system for the 4 sites and for Wajir hybrid plant for optimal operation.
- Assist the client in preparation and finalization for Wajir Hybrid plant.
- Review and evaluate proposals from contractors, suppliers, and service providers, ensuring compliance with project requirements and industry standards.
- Provide technical support and guidance during the design phase, including review and approval of engineering drawings, layouts, and technical documentation.
- Oversee the construction and installation of hybrid system components, conducting regular site inspections to monitor progress, quality, and safety.
- Coordinate with contractors, subcontractors, and project stakeholders to resolve any technical issues or challenges that may arise during the construction phase.
- Lead a team of other experts including but not limited to Solar PV expert, Environment and Social expert and Civil Engineering Expert in delivering their mandate.
- Conduct performance testing and commissioning of the hybrid system, ensuring that all components operate efficiently and meet design specifications.
- Develop operation and maintenance manuals, training materials, and procedures for the efficient operation and management of the hybrid system.
- Provide post-construction support and troubleshooting assistance as needed during the operational phase of the project.

Qualifications and Experience:

The ideal candidate for the Consultant position should possess the following qualifications and experience:

- Bachelors or Master's degree in Electrical Engineering, Renewable Energy, or a related field.
- Professional engineering license or certification.
- Ten (10) years' experience as a Lead Consultant in project management and contract administration of infrastructure projects.
- Five (5) years' experience in supervision and management of works as a Lead Consultant in similar solar PV systems, preferably in hybrid energy projects or off-grid solar PV systems with knowledge in and contract administration
- Previous experience working on similar projects in areas with very high security risk and in similar geographical regions.

3.2 Project Environment and Social (E&S) Expert

The client seeks to engage a qualified Environment and Social (E&S) Expert.

Objective: The primary objective of this consultancy is to provide expert guidance and oversight on environmental and social matters throughout the various stages of the project, from planning and design to construction, operation, and closure. The E&S Expert will ensure that the project is implemented in a manner that minimizes adverse environmental and social impacts, promotes sustainable practices, and maximizes positive outcomes for affected stakeholders.

Scope of Service: The scope of work for the E&S Expert includes, but is not limited to, the following tasks:

- Conducting comprehensive review on the already drafted environmental and social assessments to confirm earlier identified potential project impacts on natural resources, ecosystems, biodiversity, and local communities.
- Reviewing proposed environmental and social management plans, including mitigation measures, monitoring programs, and stakeholder engagement strategies, to address identified risks and impacts.
- Providing guidance and technical support to project teams, contractors, and subcontractors on environmental and social requirements, standards, and best practices.
- Facilitating stakeholder engagement and consultation processes to ensure meaningful participation of affected communities, indigenous peoples, and other relevant stakeholders in project planning, decision-making, and implementation.
- Monitoring project activities to ensure compliance with environmental and social commitments, permits, regulations, and international standards, and conducting regular site inspections to assess environmental and social performance.
- Implementing grievance mechanisms and conflict resolution processes to address complaints, concerns, or disputes raised by project-affected stakeholders in a timely and transparent manner.
- Conducting capacity-building activities and training sessions for project staff, contractors, and local stakeholders on environmental and social management principles, practices, and requirements.
- Preparing regular progress reports, environmental and social monitoring reports, and other documentation required by regulatory authorities, funding agencies, and project stakeholders.
- Reviewing and evaluation contractor E&S activities actioned for payments processing and advising the client.
- Undertaking periodic reviews and evaluations of environmental and social performance to identify lessons learned best practices, and opportunities for continuous improvement.
- Assist the client in preparation and finalization of E&S scope of the tender document for Wajir plant.

Qualifications and Experience: The ideal candidate for the E&S Expert position should possess the following qualifications and experience:

- Bachelors or Master's degree in Environmental Science, Environmental Management, Social Sciences, or a related field.
- Specialized training or certification in environmental and social impact assessment, management, and compliance.
- 5 years' experience working on renewable energy projects, infrastructure projects, or development projects with significant environmental and social implications.
- Experience working in multicultural and multidisciplinary teams, as well as in multicultural and multilingual environments.
- Previous experience working on similar projects in areas with very high security risk and in similar geographical regions.
- Fluency in English and Kiswahili (written and spoken) is required; proficiency in other languages relevant to the project location would be an advantage.

3.3 Project Civil Engineer

To ensure the successful implementation of the project, the Client seeks to engage a qualified Civil Engineer.

Objective: The primary objective of this consultancy is to provide expert civil engineering support and oversight throughout the various stages of the project, from design to construction and commissioning. The Civil Engineer will ensure that civil works associated with the hybrid system components are designed, executed, and completed in accordance with the project specifications, quality standards, good engineering practice and safety regulations.

Scope of Service: The scope of work for the Civil Engineer includes, but is not limited to, the following tasks:

- Reviewing and approving civil engineering design plans, drawings, and specifications for the hybrid system components, including foundations, structural supports, access roads, and drainage systems.
- Reviewing the conducted site investigations and surveys to assess soil conditions, topography, and other site-specific factors relevant to civil works design and construction.
- Developing detailed construction plans, schedules, and cost estimates for civil works activities, ensuring alignment with overall project timelines and budgetary constraints.
- Overseeing the execution of civil works by contractors and subcontractors, including excavation, earthworks, concrete works, and structural installations.
- Conducting regular site inspections to monitor the progress, quality, and safety of civil works activities, and ensuring compliance with design specifications and regulatory requirements.
- Conduction quantitative works measurements for processing of contractor bills in time.
- Providing technical guidance and support to address any civil engineering-related challenges or discrepancies encountered during the construction phase.
- Coordinating with other project stakeholders, including Architects, structural engineers, electrical engineers, and project managers, to ensure effective integration of civil works with other project components.
- Conducting quality assurance inspections and implementing measures to maintain high standards of workmanship and construction quality.
- Implementing environmental and social management measures to minimize the environmental impact of civil works activities and promote social inclusion and community engagement.
- Providing support during the commissioning and handover of civil works components, including documentation, as-built drawings, and training as required.
- Assist the client in preparation and finalization of technical scope of the tender document for Wajir plant.

Qualifications and Experience: The ideal candidate for the Civil Engineer position should possess the following qualifications and experience:

- Bachelors or Masters Degree in Civil Engineering.
- Professional engineering license or certification.
- 5 years' experience in civil engineering design and construction in similar projects.
- Proficiency of software tools for civil engineering design and analysis.
- Previous experience working on similar projects in areas with very high security risk and in similar geographical regions.

3.4 Project Solar PV (Photovoltaic) Expert

To ensure the successful implementation of the solar PV aspect of the project, the Client seeks to engage a qualified Solar PV Expert.

Objective: The primary objective of this consultancy is to provide expert guidance and oversight specifically focused on the solar PV (photovoltaic) aspect of the project. The Solar PV Expert will ensure that the design, installation, and operation of the solar PV system are carried out efficiently, meeting the project's goals of reliability, sustainability, and cost-effectiveness.

Scope of Service: The scope of work for the Solar PV Expert includes, but is not limited to, the following tasks:

- Reviewing already conducted assessment of solar resource potential and site suitability for solar PV installation, considering factors such as solar irradiance, shading, orientation, and available space.
- Reviewing already developed detailed technical specifications, design plans, and layouts for the solar PV array, including selection of solar panels, inverters, mounting structures, and balance of system components.
- Assist the client in preparation and finalization of technical scope of the tender document for Wajir plant.
- Overseeing the installation and commissioning of the solar PV system, conducting regular site inspections to ensure compliance with design specifications, quality standards, and safety regulations.
- Conducting performance testing and optimization of the solar PV system to maximize energy yield and efficiency, including monitoring of system performance and troubleshooting as needed.
- Providing training and capacity-building support to project staff and contractors on solar PV technology, installation best practices, and maintenance procedures.
- Developing operation and maintenance manuals, documentation, and training materials for the efficient operation and management of the solar PV system.
- Implementing environmental and social management measures to minimize the environmental impact of solar PV installation and promote social inclusion and community engagement.
- Providing technical support and expertise to address any solar PV-related challenges or discrepancies that may arise during the project implementation phase.

Qualifications and Experience: The ideal candidate for the Solar PV Expert position should possess the following qualifications and experience:

- Bachelors or Master's degree in Electrical Engineering, Renewable Energy, or a related field, with a focus on solar PV technology.
- Professional certification or accreditation in solar PV design and installation (T3) for local solar experts or equivalent for foreign solar experts.
- 5 years' experience in the design, component selection, installation, testing, commissioning and operation of solar PV systems, preferably in hybrid energy projects or off-grid solar PV systems.
- Proficiency of solar PV design and simulation software
- Previous experience working on similar projects in areas with very high security risk and in similar geographical regions.

4.0 Duration and Location

The consultancy is expected to commence in September 2024 and continue for the duration of the project implementation phase, estimated to be 6 months. The Consultant will be required to travel to the project sites for inspections and meetings as necessary. Travel, accommodation and other unforeseen reimbursable expenses will be catered for by the client.

4.1 Reporting

The Consultant will report directly to KPLC project manager or designated representative. Regular progress reports, technical memos and other deliverables will be submitted according to an agreed-upon schedule.

4.2 Contractual Arrangements

The terms of engagement, including remuneration, payment schedule, and any other relevant contractual arrangements, will be detailed in a contract agreement between the Client and the selected Consultant. The consultant will be expected to propose their remuneration rates/day and also include the following in their pricing

- Security /accommodation arrangements for site visits
- Transport facilities
- Laptop
- Communication facilities and Internet connections
- Office facilities
- Insurances, etc.

4.3 Evaluation and Selection Criteria

The selection of the Consultant will be based on a thorough evaluation of qualifications, relevant experience. Financial proposal including rates/day based on the above ToRs, shall be submitted by the selected consultant upon receipt of RFP from the client to enable contract negotiation.

4.4 Confidentiality

All information provided by the Client and obtained during the course of the consultancy shall be treated as confidential and shall not be disclosed to any third party without the prior written consent of the Client.

4.5 Amendments

The Client reserves the right to amend these Terms of Reference at any time prior to the submission deadline by issuing an addendum or revised version.

4.6 Project information to be provided by the client:

- Pilot sites contract document
- Detailed studies document for the 5 sites
- Designs documents done by the contractor
- Any other available information requested by the consultant

5.0 Terms of Reference - Security

5.1 Preamble

All the five (5) sites are located in the North-Eastern parts of Kenya, where most foreign missions do not recommend travel for safety reasons.

The candidates will take this fact into consideration in their financial proposal but also in their technical proposal, in which they will describe the measures they intend to put in place to ensure the safety of their personnel.

The Consultant must show the care it exercises to protect self and its employees who perform Works in the country. Therefore, it must identify the risks and, in light of this analysis, define prevention and protection resources, incorporating additional resources therein, which may be organisational, technical or human resources. These elements shall be described in a methodology, which for each of the headings below must address and describe what the Consultant has planned.

Disclaimers:

- 1 - Although the specified admissibility requirements endeavour to correlate with the potential risks to which the Contract may be exposed, they are intended to be used solely to evaluate Proposals in order to eliminate Proposals that do not meet a minimum set of requirements. They are in no event to be understood to constitute sufficient measures to ensure the security of persons and property in connection with the Contract. **The risk assessment and security measures to be defined in consequence thereof are the responsibility of the Consultant, who shall explain them in its security methodology.**
- 2 - **A methodology that fails to meet any one of the admissibility requirements set out in the sections below will be declared non-compliant and the Proposal of the Consultant will be rejected.**

5.2 Analysis of security issues and threats

The Consultant shall describe its view of the security environment and threats in the area where the Contract will be performed and/or the danger area, and present a security analysis for the relevant area and for the activities it will perform therein. It shall specify the method and references used to perform this analysis and describe the main threat scenarios that can be identified at the Proposal stage.

In addition, it shall at all times be able to share information learned from its country watch by its local organisation or head office.

Admissibility requirements:

- Document describing the method used to carry out this analysis;
- At least one identifiable reference source must be used;
- Identification and evaluation of security threats in relation to the contract;

5.3 General security organisation

The Consultant shall define the general security roles and responsibilities within its organisation and the allocation of the associated tasks for this Contract (including subcontractors and co-contractors), and shall designate a security reference person. It shall define the planned organisation and resources. In the event of a Joint Venture (JV), the leader shall designate a security officer as the JV's sole contact for this Contract.

Admissibility requirements:

- Description of the organisation;
- The Consultant (and each member in the case of a JV) shall provide the name of the company's internal security officer, who shall be responsible for defining and monitoring the measures implemented for the Contract.

5.4 Specific security measures planned

Based on its own security analysis and the main threat scenarios it may have identified, the Consultant shall plan specific and appropriate measures. These measures shall cover at least the following matters:

5.5 Security organisation

The Consultant shall describe its local security organisation in the country where the Services will be performed. In particular, it shall specify whether this organisation relies on internal resources, using its own resources already existing in the country, or whether it uses a local partner, a security services provider or a "Security Officer" dedicated to the Contract, or whether it relies on the country's State resources and whether it can request them directly. It shall describe the respective roles planned for each participant operating locally.

Admissibility requirements:

- Description of the organisation and resources mobilised in the country of the Contract;
- The Consultant (and each member in the case of a JV) shall provide the name of the person who will be its contact for all security issues in relation to the Contract. This person may be the same person identified in Article 3 above;
- In the event of a JV, describe the coordination and distribution of responsibilities among the members;
 - Designation:
 - of a "security officer" (CV to be provided); **OR**
 - a security service provider (references to be provided), with experience in the region where the Contract will be performed.

5.6 Travel within the country and to the relevant area

Depending on the security analysis, special measures may be required to ensure secure travel within the country. These means may include the use of aircraft of national companies or private aircraft, the use of passenger vehicles, or maritime or inland waterways.

The Consultant shall describe the resources and measures planned to protect itself against security risks (crime, kidnapping, etc.) during these trips. These provisions may be technical, organisational or human. It shall distinguish between measures concerning protective actions and measures deemed forward-looking actions.

The Consultant shall describe the planned transport logistics, including human, technical and organisational resources and mechanisms for monitoring travel. It shall also define its requirements for maintenance management and rules of conduct.

Admissibility requirements:

- Description of modes of travel, the physical means of travel and the security measures planned in connection with such travel;
- Distribution of roles and measures planned for the Consultant itself, for external participants and those expected from the Client and local authorities, identifying each actor;
- Identification of the service provider responsible for arranging escorts.

5.7 Accommodation during assignments

If the accommodation and security measures of the Consultant are not provided by the Client or the works company (in the case of construction project), the Consultant shall describe the type of accommodation and the measures planned to ensure the security of teams (security guards, physical means, etc.).

Admissibility requirements:

- Description of the accommodation selection criteria and security measures planned for each overnight stay;
- Provision of the names and addresses of hotels or accommodation venues planned for overnight stays;
- Description of the additional protective measures (security, specific accommodation for long-term stays ("panic room", etc.).

5.8 Communication

The Consultant shall implement a communication and exchange process between the various Contract participants, to ensure reporting of security events, and that preventive or corrective actions deemed necessary are properly carried out. It shall describe the means enabling it to ensure effective communication.

Admissibility requirements:

- Description of the planned means of communication and measures taken to ensure their reliability;
- Proof of subscription (or quote) for a satellite communication service.

5.9 Information, awareness-raising and training before departure

The Consultant shall make arrangements to inform, raise awareness and train its employees prior to departure on assignment. These arrangements shall be in the form of formal

communication actions. It shall describe the provisions specifically planned for this Contract, in the form of "service orders" or similar documents.

Admissibility requirements:

- Description of essential instructions provided to employees (welcoming, briefings, updating of instructions booklets, etc.);
- Provision of the list of emergency numbers (local numbers and service providers, repatriation, head office on-call security service) furnished for the Contract's assignments;
- List of possible travel restrictions, modes of transport within cities, forbidden neighbourhoods, etc.

5.10 Alert management and crisis management

The Consultant shall prove that it has set up a crisis management process involving the local organisation and its head office. It shall describe the main procedures for triggering this process and its key operating procedures.

For this purpose, the Consultant shall describe the alert process, from the local organisation to its head office, and the interaction with the Client.

Admissibility requirements:

- Summary of the crisis management procedure dedicated to security, describing triggers, roles and responsibilities.