

1. IDENTIFICATION

Title of TOR	Solarization of the Directorate of Food and Nutrition (DFN) Office with 24kva Output system.
Anticipated start date	August 2026
Anticipated end date	December 2027
Contract Supervisor	Chief of Health & Nutrition Section
WBS	3900/A0/09/881/001/003
Grant	SC260023
Estimated Budget (USD)	

2. BACKGROUND AND OBJECTIVES:

Background

Following a request from the Directorate of Food and Nutrition (DFN), Ministry of Health, an assessment is planned for the DFN office building located within the central vaccine store premises to determine its solarization requirements. The request highlights the need for a reliable and sustainable power supply to support uninterrupted office operations and the functioning of essential equipment. The current dependence on grid electricity presents operational challenges that affect service continuity and overall workplace efficiency.

To address this need, Directorate of Food and Nutrition (DFN), Ministry of Health has requested support from UNICEF Sierra Leone to finance the assessment and procurement, installation, testing, and commissioning of a **24 kVA solar photovoltaic (PV) power system**, complete with battery energy storage and all associated accessories. The solarization of the facility is intended to provide a dependable and sustainable source of electricity, improve energy security, reduce reliance on the national power grid, and enhance the resilience of the Directorate's operations.

The intervention forms part of efforts to strengthen the operational capacity of the Directorate of Food and Nutrition by ensuring access to clean, renewable, and reliable energy that supports the effective delivery of its mandate.

Objective

The objective of this project is to enhance the energy reliability and operational resilience of the Directorate of Food and Nutrition office through the provision of a sustainable solar power solution at the Directorate's office.

Specifically, the project aims to:

- Supply, install, test, and commission a 24 kVA solar photovoltaic (PV) system with battery storage and associated equipment.

- Provide a reliable and sustainable source of electricity to support uninterrupted office operations.
- Reduce dependence on grid electricity and mitigate the impact of power outages.
- Improve energy efficiency and resilience of the facility with renewable energy.
- Support a conducive working environment through un-interrupted power supply that enables the Directorate of Food and Nutrition to effectively implement its health and nutrition programs in Sierra Leone.

3. SCOPE OF WORK:

The scope of work includes:

- Conducting a site assessment on the existing electrical circuit and making corrections were necessary at the DFN Office.
- Preparing detailed solar PV system designs, layouts, technical drawings, and specifications of the system installed.
- Supplying all equipment, materials, and accessories required for a complete solar power system.
- Supplying and installing a 24 kVA Three-Phase Hybrid Inverter System with grid and battery integration capabilities.
- Supplying and installing a minimum 51.2kWhLithium-Ion Battery Energy Storage System (BESS), complete with Battery Management System (BMS), battery cabinets/racks, protection devices, monitoring equipment, sized to provide approximately 6-8 hours of backup power for critical office operations.
- Supplying and installing solar photovoltaic (PV) modules with adequate capacity to meet the office energy demand and support battery charging requirements.
- Supplying and installing mounting structures, combiner boxes, charge controllers (where applicable), and all associated balance-of-system components.
- Installing all AC and DC cabling, distribution boards, circuit breakers, isolators, surge protection devices, earthing, and lightning protection systems.
- Integrating the solar PV system, battery storage system, and inverter with the existing electrical installation of the building.
- Supplying and installing a remote monitoring and energy management system for real-time system performance monitoring and reporting.
- Testing and commissioning the complete solar PV, inverter, and battery storage system to verify performance, reliability, and compliance with design requirements.
- Providing operation and maintenance training to designated DFN personnel and biomedical engineers for sustainable energy supply.
- Preparing and submitting as-built drawings, operation and maintenance manuals, equipment datasheets, warranties, and test certificates.
- Handing over a fully functional and operational solar power system to DFN/MOH.
- Providing post-installation support for a period of 1(one)year during the defects liability period and rectifying any defects resulting from faulty workmanship or equipment.

All services will be carried out under the supervision of the Chief of Health and Nutrition, with support from the Nutrition Specialist and Construction Engineer and in collaboration with the UNICEF supply section and Directorate of Food and Nutrition (DFN), Ministry of Health.

A. Pre-Installation Phase

The Contractor shall undertake the following activities prior to installation:

- Assess existing electrical infrastructure and critical circuits.
- Inspect the building roof and/or proposed installation area to verify structural suitability for solar panel installation.
- Prepare detailed system designs, layouts, single-line diagrams, and technical specifications.
- Submit engineering drawings, equipment datasheets, implementation schedule, and method statements for approval.
- Develop health, safety, and environmental (HSE) plans for the execution of the works.
- Procure and deliver all approved solar PV equipment, batteries, inverters, mounting structures, and associated accessories to the site.

B. Installation, Testing and Commissioning Phase

The Contractor shall undertake the following activities during implementation:

- Install the solar photovoltaic modules and supporting mounting structures.
- Install a 24 kVA Three-Phase Hybrid Solar Inverter with all associated protection devices.
- Install a minimum 51.2kWh Lithium-Ion Battery Energy Storage System (BESS) complete with Battery Management System (BMS), battery enclosures, and safety systems.
- Install AC and DC cabling, cable trays, conduits, combiner boxes, isolators, circuit breakers, and surge protection devices.
- Install earthing and lightning protection systems in accordance with industry standards.
- Integrate the solar PV system, battery storage system, and inverter with the facility's electrical network.
- Install remote monitoring and energy management systems for real-time performance monitoring.
- Perform system configuration and programming of the inverter, batteries, and monitoring systems.
- Conduct pre-commissioning inspections and testing of all electrical and mechanical components.
- Carry out performance testing and commissioning of the complete solar power system.
- Demonstrate system operation and functionality to the Client.
- Train designated DFN personnel on system operation, monitoring, troubleshooting, and routine maintenance.
- Prepare and submit as-built drawings, test certificates, operation and maintenance manuals, warranties, and commissioning reports.
- Handover a fully operational solar PV system capable of providing reliable power and 6-8 hours of backup supply to support office operations.

The contractor must deploy a qualified Site Manager, who shall maintain communication with the designated representative of UNICEF on site to coordinate the performance of the work.

The Site Manager will be responsible for the following:

- Manage the overall work schedule and work schedules of individual staff on site, and quality of the work.
- Report on progress to UNICEF designated representatives/project management team.
- Document and report on progress of works on daily and / or weekly basis in the daily site diary record
- Document and report progress of works on monthly basis.
- Monitor and manage corrective and preventive services on site.
- Monitor and inspect activities and personnel on site.

- Implement environmental controls measures as stated in the contractor's site safety management plan.
- Ensure safety of workers on site
- Facilitate monitoring teams on site and update them on the progress
- Coordinate with the relevant authorities as per needs of the project, when required.
- Document progress through providing status reports with photographs, diagrams
- Support implementation of changes in plans as required.

4. DELIVERABLES/ PERFORMANCE PAYMENT SCHEDULE

No.	Deliverable	Description	Payment (%)
1	Inception Report and System Design Approval	Submission of site electrical circuit assessment report, detailed system design, implementation schedule, technical specifications, drawings, and method statements approved by the Client.	20%
2	Supply and Delivery of Equipment	Delivery to site of all major equipment, including solar PV panels, 24 kVA three-phase hybrid inverter, minimum 51.2kWh Lithium-Ion Battery Energy Storage System (BESS), mounting structures, monitoring system, and associated accessories.	30%
3	Installation Completion	Completion of installation of solar PV modules, inverter, battery system, cabling, distribution boards, earthing, lightning protection, and integration with the existing electrical system.	25%
4	Testing, Commissioning and Training	Successful testing and commissioning of the complete solar PV system; demonstration of system performance; training report of DFN staff and biomedical engineers; submission of test certificates and commissioning reports.	15%
5	Final Handover and Documentation	Submission of as-built drawings, operation and maintenance manuals, warranties, maintenance plan, and final handover of the fully operational system.	10%

Note: Detailed schedule of payments in accordance with the above should be developed and confirmed by the parties at the time of signing the contract.

5. WORKING LOCATIONS:

- DIRECTORATE OF FOOD AND NUTRITION (DFN) BUILDING, MINISTRY OF HEALTH, MEDICAL STORES NEW ENGLAND, FREETOWN, SIERRA LEONE

6. MANAGEMENT OVERSIGHT:

The contractor will be under the overall supervision of the UNICEF Chief of Health, Nutrition and HIV (HNHIV) and liaise on a regular basis with Director of Food and Nutrition (DFN), Ministry of Health. The UNICEF Nutrition Specialist will be the focal point for all programmatic aspects whilst the Health & Nutrition Section Construction Engineer will be the focal point for all technical aspect related to the implementation of the construction projects.

The Contractor shall submit list of technical staff in its current payroll with minimum qualifications of project manager, electric engineer, mechanical engineer, architect, and structural engineer. Likewise, list of tools and equipment that the Contractor has in its list of assets that will be used for the Project implementation and execution.

7. QUALIFICATIONS AND EXPERIENCE REQUIRED:

All interested agencies/companies should have minimum 5 years of previous work experience in undertaking large-scale construction projects.

Proposals must indicate previous work completed within the past five years including the cost of executing those projects.

Positive references from the clients clearly stating successful/ satisfactory completion of work

Bidders who will fail to provide all documents mentioned above will be disqualified at this stage and not eligible for the technical assessment.

Proposed personnel qualifications short background of the key staff to be assigned for the assignment and their proposed position together with CV. The working team for field and office work should consist of the following key personnel together with adequate supporting manpower in each location:

Item No.	Position/specialization	Relevant academic qualifications	Minimum years of relevant work experience
Key Personnel			
1.	Project Manager	• Bachelor's Degree or Higher National Diploma (HND) in Electrical Engineering, Renewable Energy Engineering, Electromechanical Engineering, or a related field. • Minimum of 5 years proven experience in the supervision and management of solar photovoltaic (PV) installation projects, including battery energy storage systems.	10
2.	Solar Technician	• Ordinary Diploma/Certificate in Electrical Engineering with experience in solar installation and its equivalent in a related field	5

Note: The above professional staff composition is the client's suggestion as a minimum requirement. If the proposed contractor's team and inputs is found inadequate by the client during

the performance of the service, then additional staff shall be provided by the contractor at their own cost.

The contractor will need to provide all the administrative, technical, professional and support staff needed to carry out its services. The contractor will also be responsible for providing all other necessary facilities and logistical support for its staff, including accommodation, vehicles, miscellaneous transportation, office equipment, survey and communications, utilities, office supplies and other miscellaneous costs for carrying out the services as per the requirement of the ToR.

8. APPLICATION AND EVALUATION PROCESS:

Each proposal will be assessed first on its technical merits and subsequently on its price. In making the final decision, UNICEF considers both technical and financial aspects.

TECHNICAL PROPOSAL WEIGHTAGE: 70 POINTS

FINANCIAL PROPOSAL WEIGHTAGE: 30 POINTS

The Evaluation Team first reviews the technical aspects of the offer, followed by review of the financial offers of the technically compliant vendors. The proposal obtaining the highest overall score after adding the scores for the technical and financial proposals together, that offers the best value for money will be recommended for award of the contract. Only agencies scoring 49 and above will be considered for financial evaluation.

The Technical Proposal should include but not be limited to the following:

EXPECTED CONTENT OF THE PROPOSAL (THIS IS JUST A GUIDELINE)	
- Company Profile <i>Ensure to include information related to the experience of the company as required and outlined in item 7 of this document.</i> - References Details of similar assignments undertaken in last <i>three</i> years including the following information: - o Title of Project - o Year and duration of project - o Scope of Project - o Outcome of Project - o Reference / Contact persons	
	Methodology: The contractor will undertake a site assessment and energy audit to determine system requirements and prepare detailed designs for approval. Following approval, all solar PV equipment and materials will be procured and mobilized to site. Installation will include solar panels, a 24 kVA three-phase hybrid inverter, a minimum 51.2kWh lithium-ion battery storage system, monitoring equipment, and associated electrical infrastructure. The system will then be tested and commissioned to verify performance and compliance with specifications. Finally, the contractor will provide staff training, submit all required documentation, hand over the completed system, and provide warranty and post-installation support.

Provide a detailed mobilization schedule of all personnel, equipment and materials for each location
Provide a detailed work plan of all construction activities indicating the duration of each activity using advance project management software/ Proposed work plan showing detailed sequence and timeline for each activity and man days of each proposed team member in each location
Provide a detailed ESHS management and implementation plan that will be as guideline for the execution of works
Provide a list of all equipment and indicate either owned or hired
Human Resource Composition: Provide a list of key personnel as requested in the bid document Title and role of each team member CV of each team member (including qualifications and experience) Ensure to include information related to the qualifications and experience of each proposed team member as required and outlined in item 6 of this document.

The Financial Proposal should include but not be limited to the following:

Bidders are expected to submit a lump sum financial proposal to complete the entire assignment based on the terms of reference. The lump sum should be broken down to show the detail for the following:

- **Resource costs**
Daily rate multiplied by number of days
- **Conference or workshop costs (if any)**
Indicate nature and breakdown if possible
- **Travel Costs**
All travel costs should be included as a lump sum fixed cost.
For all travel costs, UNICEF will pay as per the lump sum fixed costs provided in the proposal.
A breakdown of the lump sum travel costs should be provided in the financial proposal.
- **Any other costs (if any)**
Indicate nature and breakdown
- **Copy of the company registration**
- **Recent Financial Audit Report**
Report should have been carried out in the past 2 years and be certified by a reputable audit organization.

Bidders are required to estimate travel costs in the Financial Proposal. Please note that i) travel costs shall be calculated based on economy class fare regardless of the length of travel and ii) costs for accommodation, meals and incidentals shall not exceed the applicable daily subsistence

allowance (DSA) rates, as propagated by the International Civil Service Commission (ICSC). Details can be found at <http://icsc.un.org>

Table including evaluation criteria should be included here.

CRITERIA	MAXIMUM POINTS
Technical Evaluation	
Organizational Strength - Evidence of company registration, business license, and authorization to operate in Sierra Leone. (Mandatory) - Minimum of five (5) years' experience in solar PV system design, supply, installation, and commissioning, with demonstrated experience working in Sierra Leone. (Mandatory) - Demonstrated financial capacity and availability of credit facilities. Provide a list of ongoing projects indicating project value, scope, and location. (5 points) - Evidence of at least five (5) completed solarization projects of similar or larger scale executed within the last five years, including contract value, system capacity, client name, and project location. (10 points) - Client reference list, including a minimum of three (3) reference letters from previous clients confirming satisfactory performance in similar solar PV projects. (5 points)	(20)
2. Project Approach - Detailed work programs from mobilization to project completion, including design, procurement, installation, testing, commissioning, training, and handover. (10 points) - Project implementation plan with clearly defined phases and activity schedule presented in a bar chart. (7 points) - Quality control plan covering equipment quality, installation standards, testing procedures, workmanship, and site records. (4 points) - Approach for managing environmental and social risks, waste disposal, labor rights, and health and safety during project implementation. (4 points)	(25)
3. Personnel Strength - Detailed list of personnel proposed for the project, including CVs and profiles of key technical staff responsible for the design, installation, testing, commissioning, and maintenance of the solar PV system. (15 points) - Clear categorization of key personnel and support staff, with defined roles and responsibilities for project implementation. (5 points)	(25)

• Workload distribution among key personnel, including profiles of the Project Manager, Electrical/Solar Engineer, and Site Manager assigned to the project. (3 points) • Deployment plan showing the mobilization and allocation of personnel throughout the project implementation period. (2 points)	
Financial Evaluation	
4. Price	(30)
TOTAL MARK (Technical + Financial points)	(100)

10.0 ENDORSEMENT OF TERMS OF REFERENCE: