Humanity & Inclusion (HI) invites tenders for the supply of a Hybrid Solar PV-Battery Backup System for field operations in Mekelle, Tigray Region, Ethiopia.

- Posted Date: Wednesday 22nd, April 2026 (7 months ago)
- Closing Date: Wednesday 06th, May 2026 4:00 pm (closed)
- Bid Bond:
- Location:Addis Abeba
- Bid Document Price:
- Bid Opening Date: Wednesday 06th, May 2026 4:30 pm
- Category: Electronic Equipment & Accessories/

CALL FOR TENDER - (CFT)

Supply of Hybrid Solar PV-Battery Backup System

Reference No. HI/ETH/LOG/CFT/006/2026

Date of publication of CFT Notice: 22 April 2026

Deadline for the receipt of tenders: 06 May 2026 @ 4:00 PM

Humanity & inclusion (HI) is an independent and impartial aid organization working in situations of poverty and exclusion, conflict and disaster. Working alongside persons with disabilities and other vulnerable groups, our action and testimony are focused on responding to their essential needs and improving their living conditions. HI is a non-governmental, non religious, non-political and non-profit making organization and would like to buy the below Hybrid Solar PV-Battery Backup System.

TECHNICAL SPECIFICATIONS

Procurement of Hybrid Solar PV-Battery Backup System for Field Operations

1. Purpose of Procurement

Humanity & Inclusion intends to procure and install a hybrid solar photovoltaic (PV) and battery backup system to support operational continuity of its field office and project site in Mekelle, Tigray Region, Ethiopia. The system will provide reliable and uninterrupted power supply to critical office loads during grid interruptions while reducing dependency on conventional power sources. The system shall be designed to ensure continuity of essential operations under varying grid conditions, including extended outages. The supplier shall be responsible for delivering a system that meets the required performance outcomes under actual operating conditions.

2. General Requirements

The tender consists of two (2) distinct installation locations. Bidders may submit offers for one or both locations, and shall clearly indicate the proposed solution for each location. • Mekelle Field Office • Mekelle Ortho-Physiotherapy Center (MOPC) Project Site

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Detail Technical Specifications

3. System Scope and Configuration

The supplier shall provide a complete hybrid solar power system including design, supply, transportation, installation, testing, commissioning, and training. The system shall integrate PV generation, lithium battery storage, and grid supply through a hybrid inverter configuration. Under normal conditions, grid power shall supply loads and charge the battery, while during grid outages the battery system shall automatically supply designated critical loads without interruption. The solar PV system shall continuously contribute to battery charging and daytime load support. The system shall be designed with provision for future expansion, particularly in battery storage capacity, without requiring major system redesign.

4. Design Basis and Performance Requirements

The system shall be designed to support critical loads only, with an estimated daily energy demand in the range of 20 to 30 kWh. The supplier shall validate the load profile through site assessment and shall be fully responsible for ensuring that the proposed system sustains the identified critical loads during power interruptions. The supplier shall clearly define and guarantee the backup duration achievable under normal and worst-case conditions, including overnight operation where applicable. The supplier shall submit detailed system design calculations demonstrating expected performance, including battery autonomy, solar generation, and system behavior under reduced solar conditions. Failure to meet the stated performance shall be the responsibility of the supplier.

5. Solar Photovoltaic System

The PV array shall have a nominal installed capacity of approximately 11.7 kWp, based on high efficiency monocrystalline modules rated at approximately 585 W each, with a total quantity of approximately twenty (20) panels or an equivalent configuration. The supplier may propose higher capacity where justified to meet performance requirements. The system shall include all required DC components, including cabling, connectors, combiner boxes, and protection devices, ensuring safe and efficient operation under local environmental conditions.

6. Battery Energy Storage System

The battery system shall consist of lithium-ion batteries with a baseline capacity of approximately 20 kWh, based on modular units of approximately 5 kWh each. The supplier may propose higher capacity to meet performance guarantees. The system shall operate at 48 V DC and include an integrated Battery Management System (BMS) providing protection against overcharge, deep discharge, overheating, and short circuits. The battery system shall be modular and expandable, allowing future capacity increase without replacement of the existing system. The supplier shall clearly indicate expandability limits and requirements.

7. Inverter and Power Conversion System

The system shall include hybrid inverter units with a nominal capacity of approximately 10 kW each, capable of parallel operation if required. The supplier may optimize inverter configuration provided that performance requirements are achieved. The inverter shall operate at 48 V DC input and provide three phase AC output at 380 V, 50 Hz. It shall integrate PV, battery, and grid inputs and provide seamless automatic switching during grid failure. Integrated MPPT functionality and system monitoring capability shall be included.

8. Electrical Installation and Balance of System

The supplier shall provide all balance-of-system components necessary for a complete installation, including AC and DC cabling, distribution boards, circuit breakers, isolators, earthing systems, and protective devices. The installation shall comply with recognized electrical standards and ensure proper cable routing, labeling, and protection. The supplier shall ensure clear segregation of critical and non critical loads and proper integration with the existing electrical system.

9. Mounting Structure and Roof Installation Requirements

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The supplier shall be fully responsible for the design, supply, and installation of the complete photovoltaic mounting system for roof-mounted installation. The supplier shall conduct a detailed site assessment and shall submit a structural assessment or written confirmation of roof suitability prior to installation, including verification of load-bearing capacity and installation feasibility. The mounting structure shall be constructed from corrosion-resistant materials such as galvanized steel or aluminum and shall be designed to withstand local environmental conditions, including wind loads and temperature variations. The supplier shall ensure that installation does not compromise roof integrity or waterproofing. All penetrations shall be properly sealed, and any damage caused during installation shall be repaired by the supplier at no additional cost. The mounting system shall allow adequate ventilation, drainage, and maintenance access. All necessary installation materials, including mounting hardware, anchors, supports, cable trays, conduits, connectors, and protective elements, shall be included in the supplier’s scope. All cabling shall be appropriately sized, UV-resistant where exposed, and installed in a neat, safe, and protected manner. No additional claims related to mounting, cabling, or installation materials shall be accepted after contract award.

10. Monitoring and Control

The system shall include monitoring functionality to track solar generation, battery status, and load consumption. Monitoring shall be accessible through a user-friendly interface to support operational oversight.

11. Documentation, Warranty, and Support

The supplier shall provide complete documentation including system design reports, calculations, datasheets, installation drawings, single-line diagrams, and operation and maintenance manuals in English. The battery system shall carry a minimum five-year warranty, and the inverter a minimum two year warranty. The supplier shall provide at least one year of maintenance support and confirm availability of spare parts and after-sales service.

12. Compliance and Evaluation

Bidders shall submit detailed technical proposals demonstrating compliance with this specification. Evaluation shall consider both compliance with baseline requirements and the ability to meet performance obligations. Suppliers may propose improved technical solutions where justified. Any deviations must be clearly stated and supported. Proposals that fail to demonstrate required performance, reliability, and system completeness may be rejected.

1. Key Provisions:

- Bidders may decide to supply ALL or PART of the above listed Supplies. (Note that ability to supplying All is an added value).
- All bidders must reflect their Delivery Time in terms of number of WEEKS beginning from signing the contract.
- Delivery location of the items is at HI Country Office in Addis Ababa
- The Final Quantity to be Ordered may vary up to 25

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