

Olayan Foundation
Golo HOSPITAL
Lot 8 – Scope of Work – Solarization of the Hospital

Contractor: [To be appointed through bidding/tender process]

Lot 8 Reference: Solarization of the Hospital

Budget Lines:

- 105315.100.01 10US.E.01.23 53-75-500 – Solarization of the hospital

Document Date: _26 April 2026

Project Location: Golo Hospital – Golo locality

CONTRACTUAL CONDITIONS AND OBLIGATIONS

1.1 Mandatory Pre-Contract Requirements

Requirement	Details
Site Visit	The Contractor shall conduct a mandatory visit and inspect the site thoroughly prior to submitting the bid/tender document. Submission of the bid/tender shall be deemed as full acknowledgment and acceptance of all site conditions without reservation.
Material pre-approval	All construction materials shall be submitted for approval by the IMC-appointed Supervising Engineer prior to delivery to site. No materials shall be used unless approved by IMC Engineer-approvals by written Notes.
Guarantee Period	The Contractor shall provide a 6-month guarantee for all materials and workmanship starting from the date of final handover. Any defects appearing during this period shall be rectified at no additional cost to IMC.
Engineering Supervision	All work shall be executed under the supervision of the IMC-appointed Engineer and SMOH/WES representatives. No work shall be concealed without prior inspection and approval. The contractor shall nominate their representative to IMC in the contract and work plan.
Quality Compliance	All works shall comply with approved specifications, drawings, sound engineering practice, applicable Sudanese standards, and the Bill of Quantities requirements. Non-compliant works shall be removed and corrected at the Contractor’s expense.

1.2 General Contractor Obligations

1. The bid/tender prices shall include all materials, labor, equipment, transportation, loading, unloading, and all requirements necessary for proper completion of the works, whether or not explicitly stated in the BoQ.
2. All works shall be executed in accordance with approved specifications, drawings, and instructions of the Supervising Engineer.
3. No substitutions in materials or construction methods shall be made without prior written approval from the Supervising Engineer.
4. The Contractor shall include all necessary protection works for the site and existing facilities. Any damage caused during execution shall be repaired at the Contractor’s expense.
5. All measurements shall be taken on site after execution and approved by the Supervising Engineer, whose decision shall be final.
6. The works shall include interim and final cleaning, and the site shall be handed over in a clean, safe, and usable condition.

7. The Contractor shall be fully responsible for health, safety, and security on site and shall provide all required safety measures throughout the construction period.
8. In case of discrepancies between drawings, specifications, and BoQ, the matter shall be referred to the Supervising Engineer for clarification. No additional payment shall be made without prior written approval.
9. Tender prices shall include all required testing and inspections for materials and executed work.
10. The Contractor shall comply with the approved project schedule. Any unjustified delay shall be subject to penalties in accordance with contract conditions.
11. The Contractor shall rectify any defects appearing during execution or within the defect's liability period at no additional cost.
12. Partial approvals or interim handovers shall not relieve the Contractor of full responsibility for quality and integrity of the works.
13. Where quantities or units are not specified, the Contractor shall be deemed to have included all works necessary for completion of the item according to its intended purpose and Engineer's instructions.

SCOPE OF WORKS – DETAILED BREAKDOWN

The works shall be executed in accordance with the Bill of Quantities and shall include, but not be limited to, the following:

Item 1: Solarization of the hospital

1. Solar Array & Mounting Structures

- Solar Panels: Provision and setup of GSB Monocrystalline 590W panels. A total of 21 panels are to be installed and configured into two strings according to engineer directions.
- Mounting Frames:
 - Supply and installation of two (02) galvanized steel structures (3mm thickness) engineered to support a total of 162 solar panels and withstand wind speeds up to 120 km/h.
 - Installation: Structures are to be installed on level ground using 14 supports at a 17-degree tilt angle with a North-South orientation.
 - Civil Works: Construction of 50 x 50 x 50 cm concrete foundations (1:3:6 mix) for each support, including a 3-day water-spraying curing period, tying, bolts, and nuts.

2. Inverter & Battery Storage

- Hybrid Inverter: Provision and setup of one 50 kW / 48V Pure Sine Wave Three-Phase Hybrid Inverter. The unit must support solar inputs up to 500V per string and be compatible with LiFePO4 batteries.
- Battery Bank: Provision and setup of a 90 kWh LiFePO4 (Grade A) battery module (51.2V, 300-320 AH).
 - Specifications: 90% Depth of Discharge (DoD) and a lifespan of up to 6,000 cycles.
 - Setup: Includes all connections, programming, and synchronization with the inverter, supporting parallel connection.
- Battery Enclosure: Provision of a protection rack and enclosure for the battery set, manufactured from local steel.
- Cooling System: Installation and configuration of an 80-100W wall-mounted fan (Pakistani or Indian brand) for inverter cooling, including all electrical connections and accessories.

3. Protection Panels & Combiner Boxes

Supply and installation of Protection Panel Boards divided into two panels, including internal components and accessories:

- DC Protection: 6 units of 20A fuses (1000V DC, 10x38 mm) with holders and 3 units of 32A 2-pole DC polarized MCBs (1000V).

- Battery Protection: 1 unit of 125A and 1 unit of 150A non-polarized Main DC MCCBs for charge/discharge protection, including enclosures.
- AC Protection: 2 units of 230V/63A AC Voltage/Current regulators, 2 units of 32A 2-pole AC MCBs, and 2 units of 63A Changeover switches.
- Connectivity: Glands are to be used for connections between panels, batteries, and inverters as determined by site inspection.

4. Cabling & Routing

- Solar Power Cable: 100 meters of 6mm² PV-1F copper conductor cable (Red/Black).
- Containmentment:
 - Indoor: Turkish PVC trunking (25 x 40 mm).
 - Outdoor: Heavy-duty ½-inch concrete conduits (Saudi or Omani origin).
 - Flexible Routing: Use of corrugated hose in locations where trunking or concrete conduits are not applicable, with clear identification markers for each string.
- Configuration: Connection of two (2) strings, including all required fixing, termination, and civil work.

5. Earthing & Lightning Protection

- System Protection: Installation of an earthing system, surge protection, and lightning arrester using pure copper components and dedicated earth cabling.

Note: Further guidance and final determination of cable routing and gland requirements are to be provided by the supervising project engineer following a site inspection.

DETAILED PROGRESS TRACKING AND MILESTONE PAYMENTS

(Implementation Period: To be confirmed in contract)

Stage	% Complete	Timeline	Key Activities / Milestones	Sign-off Required
Stage 1	20%	Week 2	Site preparation and initial materials delivery and completion of sizing.	Contractor to notify IMC + SMOH
Stage 2	40%	Week 5	Solar Array Installation and completion of wiring in all the hospital Departments. Connection to the Central switchboard.	Contractor to notify IMC + SMOH
Stage 3	40%	Week 8	Complete wiring and provision of lighting accessories and testing of the switching systems.	Contractor to notify IMC + SMOH
Stage 4	10%	Week 10-12	Training on operation and maintenance routine for the operating personnel of hospital. Submission of warranty cards.	IMC + SMOH endorsement

SECTION 4: HANDOVER DOCUMENTS REQUIRED

Document	Description	Submitted By
Guarantee letter	6-months warranty letter (stamped)	Contractor
Final inspection report	Signed list clearance and final acceptance	IMC + SMOH
Completion photos	Before and after photos of works	Contractor

SECTION 5: APPROVALS

Role	Name	Signature	Date
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Prepared by	WASH Officer		
Reviewed by	Arif Osman – WASH Manager		
Approved by	Denis Igua – WASH Coordinator		
Acknowledged by	[Contractor]		