

## **Annex A – TOR & BOQ**

### **RFP/UNHCR/JOR/2022/09**

#### **FOR THE ESTABLISHMENT OF A FRAME AGREEMENT FOR the provision of Maintenance, Operation, Monitoring and Cleaning for Solar plants in Azraq Camp**

##### **Background:**

UNHCR have Solar Power plants with a capacity of five (5) MW, divided in a total of 3 phases: Phase 1 with a capacity of 2 MW, Phase 2 with a capacity of 1.5 MW, totaling 3.5 MW on Net-metering connection, and Phase 3 with a capacity of 1.5 MW on Wheeling connection

Phase 1 and Phase 2 are located inside Azraq Syrian Refugee Camp, while Phase 3 is located 7KM south of the camp, along Azraq international highway.

The plants are directly connected to the grid using step up transformers. The required maintenance will mainly be cleaning panels, conducting regular tests, installing spare parts, monitoring generation and PV performance.

The contractor shall perform the following tasks:

##### **1. Maintenance (Cleaning and Operation):**

- Dry cleaning for Phase 1, 2 and 3 with a capacity of 2 MW, 1.5 MW and 1.5 MW respectively, with a total capacity of 5 MW.  
Cleaning will be done approximately twice a month for each phase, with a total of 24 times per year per phase.
- Upon request, mainly from April to September each year of the contract period, wet cleaning for the three phases must be conducted once a month, estimated 4 - 6 times per year per phase.

##### **2. Monitoring and Reporting**

- Daily on-site inspection by senior technician (or higher position) at 9:00 AM and 6 PM.
- Weekly inspection by Engineer or higher position and submission of a report including maintenance activities, monitoring, tests and measurements.
- Submission of a monthly Report including PV performance, maintenance, and tests.
- Submission of a yearly report to monitor PV performance for the three phases, separately for each phase.

##### **3. Performance of tests**

- The contractor shall be able to conduct the following tests:
  - Main Transformer: Tan Delta, Winding resistance and Short Circuit Impedance (Capacity Test)
  - MV cable: Very Low Frequency test

- Polarity Test, Voltage Tests, All PV String Tests, MCCB tests, Insulation resistance test, Continuity test, Earthing tests

#### 4. **Security Services**

- Provision of security service (guards) for each of the 3 phases. Services to be provided 24/7, for every day of the contract period, including any holidays.
- Maintenance and installation of any needed components or services for the continuity and uninterrupted operation of the existing CCTV system 24/7, every day of the contract period, including any holidays.

#### 5. **License fees and renewal**

Phases 1 and 2 are under one license (3.5 MW), Phase 3 is under one license (1.5 MW)

- The contractor shall pay license fees for the 3 phases
- The contractor shall renew licenses for the 3 phases timely based on expiry

#### 6. **Performance, Availability, Response and Resolution Guarantees**

Contractor shall guarantee performance in the form of Performance Ratio guarantee. Contractor shall guarantee Availability Level Guarantee of 99% at inverter level. Bidder shall include in the submission documents, his guaranteed Performance Ratio, any corrections, availability guarantee and defining availability responsibility matrix, methods of calculation, and any excluded conditions. The guarantees shall be done as per IEC61724 and NREL TP-7A40-73822 as applicable.

#### 7. **Additional Submission Documents**

Bidder shall submit following documents for evaluation:

- Dry cleaning: Schedule, methodology, tools, and materials including brush type, datasheet and/or certificates.
- Wet cleaning: Schedule, methodology, tools, and materials including quantity and quality of water provided, brush type, datasheet and/or certificates.
- Security: Company, posts, shifts, comments.
- Preventive maintenance: Schedule, safety, methodology and activities intended, on quarter basis per year, this includes list and quantity of tools, machinery, and measurement devices; calibration and/or validation reports must be provided by awarded bidder after award.
- Corrective maintenance: safety, methodology, faults, and corresponding actions.
- Tests: Types of tests, test equipment, forms, standards, optimum Readings, methodology and activities intended.
- PV Performance: Forms, generation on monthly and accumulatively, system availability, on-site consumption.  
Bidder can include additional details for points above as well as additional points for the purpose of demonstrating technical competency.
- The bidder shall submit company profile, organization chart/management structure and history of past projects (and proof through Contracts, Purchase Orders, or similar) demonstrating 5 years of experience in solar photovoltaic design, installation, and operation and maintenance, have a minimum of 5 projects of at least 1 MW each within the past 8

- years, completed or underway, and provide references for a minimum of 5 relevant client contracts
- The bidder shall detail all personnel requirements, security measures, scheduled equipment replacement, HSE plan (meeting minimum national and international requirements) maintenance schedules and operation for each year, and submit CVs of key staff.
  - The bidder shall submit copy of valid registration certificates from Companies Control Department with company purposes including design, supply, installation, operation and maintenance and testing of renewable energy systems.
  - The bidder shall submit copy of valid Class “A” license from EMRC and authorized to undertake the required works of maintenance on solar.
  - The bidder shall submit CVs for key personnel including:
    - 1 Project Manager with 8 years of experience, 5 years of which specifically **demonstrating** experience in **managing** solar PV projects in construction, commissioning or Operation and Maintenance.
    - 1 O&M Engineer with 5 years of experience in solar PV Operation and Maintenance.
    - 1 Site Engineer/Senior technician with
      - 10 years of experience in electrical works, of which 4 years at least in solar PV with diploma,
- OR**
- 5 years of experience in solar PV with university engineering degree.
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**Service conditions:**

In case of and upon award, awarded bidder shall submit CVs for key personnel **as well as all staff**, and acquire UNHCR approval. UNHCR at its discretion can approve or reject and require proof of degrees/certificates and experience.

The contractor may employ local and refugee labor to support operation and maintenance of the plant, subject to approval of UNHCR depending on the role and activities to be performed by each. Employment of refugees is encouraged where skill-level is suitable. For critical electrical works, professional electricians are required.

The contractor shall guarantee that the services will be uninterrupted for the duration of the contract. Absences due to an emergency need to be approved by UNHCR and a solution agreed upon so that the on-going project is not adversely affected.

Equipment damaged during maintenance activities or as a result of inadequate maintenance or poor security shall be replaced and/or rectified by the contractor at the contractor’s expense.

Issuing permits and related expenses, if any, for staff and materials to perform duties are the responsibility of the contractor.

When and where tests performed indicate faults or non-compliance with standards, the contractor is responsible to rectify and ensure plants are in line with best industry practices and international

standards. This includes needed modifications to existing connections within plant, switchgear, and delivery station as well as reinforcing earthing.

### **Environmental Considerations**

All packaging and wastes associated with any activities shall be carefully disposed of in accordance with applicable Jordanian laws.

The contractor shall be responsible for ensuring the waste materials, packaging, and any other items associated with installations, maintenance, tests, cleaning, and security do not get blown or otherwise distributed around the site. They shall also be careful not to create excessive dust or debris in any area. Any costs incurred in cleaning wastes or debris generated by the contractor shall be charged to the contractor and paid for at the contractor's expense.

The contractor shall be responsible for repairing and/or replacing anything, which has been damaged by the contractor within the site. They shall also be responsible for cleaning any debris, wastes, or other items created during the works.

#### **\*\*Very Important Notes:**

- 1- UNHCR have a spare for most of the key elements in the system, and the prices for the corrective maintenance shall be decided based on the fault; need to supply material and installation fees.
- 2- **Please note a site visit is mandatory prior to submit your offer. Site visit is scheduled on 2<sup>nd</sup> June 2022.**

Vendors shall submit IDs for staff and a valid vehicle license 48 hours days before the site visit date to get the needed permissions.

- 3- The equipment damaged during inadequate maintenance or poor security measures shall be replaced or repaired by the contractor at their expense.
- 4- The Contractor shall detail all personnel requirements, security measures, scheduled equipment replacement, maintenance schedules and operational for each year.
- 5- The contractor may employ local and refugee labor in the operation and maintenance of the plant.

#### Bill of Quantity (BoQ):

Item	Description	Specification	Unit	Quantity/ year
Cleaning	Dry Cleaning Phase 1 (2 MW)	Soft cloth or mop. Non-abrasive only. Not prohibited to use Bristle brush, sponge, squeegee	no.	24
	Dry Cleaning Phase 2 (1.5 MW)	Soft cloth or mop. Non-abrasive only. Not prohibited to use Bristle brush, sponge, squeegee	no.	24

	Dry Cleaning Phase 3 (1.5 MW)	Soft cloth or mop. Non-abrasive only. Not prohibited to use Bristle brush, sponge, squeegee	no.	24
	Wet Cleaning Phase 1 (2 MW)	Cleaning shall be done between dusk and dawn. Water and power provided by contractor - Hard water prohibited - water shall be free from oil, other liquids, debris, excessive turbidity, odors, total hardness <75 mg/L, calcium 75 mg/L max - Max water pressure at nozzle 35bar - Detergent use subject to approval on case by case basis	no.	6
	Wet Cleaning Phase 2 (1.5 MW)	Cleaning shall be done between dusk and dawn. Water and power provided by contractor - Hard water prohibited - water shall be free from oil, other liquids, debris, excessive turbidity, odors, total hardness <75 mg/L, calcium 75 mg/L max - Max water pressure at nozzle 35bar - Detergent use subject to approval on case by case basis	no.	6
	Wet Cleaning Phase 3 (1.5 MW)	Cleaning shall be done between dusk and dawn. Water and power provided by contractor - Hard water prohibited - water shall be free from oil, other liquids, debris, excessive turbidity, odors, total hardness <75 mg/L, calcium 75 mg/L max - Max water pressure at nozzle 35bar - Detergent use subject to approval on case by case basis	no.	6
Inspection	Daily inspection and submission of filled daily inspection check-list	Twice per business day, submission of inspection check-list within 24 hours	no.	522
	Weekly Inspection and submission of report	Once per week, submission of inspection report maximum by first day of next business week	no.	52
Monitoring and Reporting	Submission of monthly report for all phases	Includes PV performance, maintenance, measurements and tests	no.	12
	Submission of annual report for all phases	Includes PV performance	no.	1

Performance of Tests	Transformers: Tan Delta, Winding resistance, Short Circuit Impedance (Capacity Test)	Per plant	no.	1
	MV cable: very low frequency test	Per plant	no.	1
	Polarity Test	Per plant	no.	1
	Voltage Test	Per plant	no.	1
	All PV string tests	per plant Earth, continuity, arc fault... etc.	no.	3
	MCCB test	Test as needed for mechanical, thermal, magnetic functions, insulation resistance	no.	6
	Insulation Resistance Test	per plant	no.	1
	Continuity Test	per plant	no.	1
	Earthing Test	per plant	no.	1
Security	Security in loco per phase	24/7, every day of the year including holidays	days	365
	Remote monitoring/security service through CCTV systems	Fee per day/24hours	days	365
Emergency Visit	Emergency Visit to reach UNHCR projects	Within 2 hours from call. This is applicable when requested by UNHCR Engineer outside working hours	no.	Upon request
Spare Parts (all-inclusive; repair/replace /fees/labor/tr ansportation... etc.)	PV solar panels 265 W	265 W no mismatching permitted with existing - IEC61215, IEC61730, TuV Certified POLY Crystalline Module 5 busbar solar cell Higher module conversion Efficiency 17.26% or higher Half cell ISO9001, ISO14001, OHSAS18001	pcs	60
	PV solar panels 275 W	275 W no mismatching permitted with existing - IEC61215, IEC61730, TuV Certified POLY Crystalline Module 5 busbar solar cell Higher module conversion Efficiency 17.26% or higher Half cell ISO9001, ISO14001, OHSAS18001	pcs	40

	PV solar panels 285 W	285 W - no mismatching permitted with existing - IEC61215, IEC61730, TuV Certified POLY Crystalline Module 5 busbar solar cell Higher module conversion Efficiency 17.26% or higher Half cell ISO9001, ISO14001, OHSAS18001	pcs	40
	Three Phase Inverter	Efficiency 98.8% or higher Highest PV system availability with 60kW units DC input voltage of up to 1000V flexible DC solutions with PV array junction boxes I / AC:III; DC: II IEC62109-1/IEC62109-2 (Class I, grounded - communication Class II, PELV), UL1741-w.non-isolated EPS interactive PV inverters, IEEE1547 VERITAS Approved Suitable with existing system as per site visit - origin and technical specs same quality or higher	pcs	20
	DC Combiner Box	switching device combination is a string combiner box for up to 12 or 14 PV strings UK10.3HESI1000V fuse modular terminal blocks The positive pole of the solar strings is connected to the UK10,3-HESI 1000V fuse modular terminal blocks The negative pole of the solar strings is connected to the STU35/4X10 BU feed-through terminal blocks or as well to UK10,3-HESI 1000V fuse modular terminal blocks The output cables are connected to the UKH150 and UKH150BU high current terminal blocks or to the load break switch. IP65 Polycarbonate housing Connection of up to 12 or 14 solar strings	pcs	20

MCCB 400A	400A - 3 pole AC DC 6kv utilisation category A 36kA breaking capacity at 400-415V IEC/ EN 60947 UL 508 H 50 kA 415 V AC durability 10000 cycle mech, 5000 cycle electrical, backplate mounting, ip20 IEC 60529 or higher, ik07 IEC 62262 or higher, -25 to 70 C operating temperature 18 months warranty or more	pcs	10
MCCB 160A	3 pole AC DC 6kv utilisation category A 50kA breaking capacity at 400-415V IEC/ EN 60947 UL 508 H 50 kA 415 V AC durability 10000 cycle mech, 3000 cycle electrical, backplate mounting, ip20 IEC 60529 or higher, ik07 IEC 62262 or higher, -25 to 70 C operating temperature 18 months warranty or more	pcs	10
MCCB 125A	3 pole AC DC 6kv utilisation category A 36kA breaking capacity at 400-415V IEC/ EN 60947 UL 508 H 50 kA 415 V AC durability 10000 cycle mech, 5000 cycle electrical, backplate mounting, ip20 IEC 60529 or higher, ik07 IEC 62262 or higher, -25 to 70 C operating temperature 18 months warranty or more	pcs	20
160-400A Adjustable breaker	3 pole AC 8kv utilisation category A 50kA at 380-480V IEC/ EN 60947 UL 508 N AC durability 15000 cycle mech, 6000 cycle electrical, backplate mounting, ip40 IEC 60529 or higher, ik07 IEC 62262 or higher, -25 to 70 C operating temperature 18 months warranty or more	pcs	10
Busbar 20/10	20/10mm, Pure copper, Insulated with heat shrink 1000V, operating temperature -55C-135C degrees, UL, CSA, MIL, color for each phase including all needed link bends/curves and accessories i.e. nuts, bolts, heat shrink... etc.	m	50

Busbar 30/10	30/10mm, Pure copper, Insulated with heat shrink 1000V, operating temperature -55C-135C degrees, UL, CSA, MIL, color for each phase including all needed link bends/curves and accessories i.e. nuts, bolts, heat shrink... etc.	m	50
Busbar 20/5	20/5mm, Pure copper, Insulated with heat shrink 1000V, operating temperature -55C-135C degrees, UL, CSA, MIL, color for each phase including all needed link bends/curves and accessories i.e. nuts, bolts, heat shrink... etc.		
Busbar 30/5	30/5mm, Pure copper, Insulated with heat shrink 1000V, operating temperature -55C-135C degrees, UL, CSA, MIL, color for each phase including all needed link bends/curves and accessories i.e. nuts, bolts, heat shrink... etc.		
Combiner Box fuses	PV / 1000VDC - 15A - cartridge type	pcs	15
Modular Surge Arrester	Type 1 + 2, 230/400V AC 3p 350V remote signalling single contacts !SD (1 C/O) Electrical Distribution Network Type, IT230 TN-C earthing systems, I <sub>max</sub> 50kA, I <sub>imp</sub> 12.5kA, <1.5 kV type 1 max voltage protection, clip-on mounting, DIN rail support, response time <=25ms EN61643-11:2012, IEC 61643-11:2011, CE, IP40 front, IP20 built-in IEC 60529, -25-60C operating temperature	pcs	5
Distribution board	Wall mounted - IP65 - 600mm*400mm*200mm	pcs	5
Weather Station	Class 2 thermopile pyranometer ISO 9060:1990, adjustable solar irradiance sensor for global or plane of array, PV panel back temperature sensor, ambient air sensor, modbus RTU communication, stainless steel hardware, 2 year warranty, optional add-on sensors, wide operating temperature range, weather resistant, SunSpec	pcs	1

		certified - US, EU, UK or Japanese origin		
	Monitoring Screen	LED A++ or A+++ 32"	pcs	1
	HD-TVI Analog Camera	IP Bullet camera, 2.8 to 12mm motorized lens IR range up to 40m 720p Dual power IP66 Suitable with existing system as per site visit - Same quality or higher	pcs	10
	DVR	HD-TVI Hybrid 8/16 Channel recorder up to 4/8 IP cameras real-time recording 48 Terabyte Suitable with existing system as per site visit - Same quality or higher	pcs	1
	NVR	16/32/64 channel h.265 NVR 2U real-time recording 48terabyte Suitable with existing system as per site visit - Same quality or higher	pcs	1
	Power Supply	Universal 12VDC 3.5A Suitable with existing system as per site visit - Same quality or higher	pcs	2
	6mm DC Cables	Temperature range -40 °C to +90 °C, Max. temp. at conductor +120 °C, tin plated copper, Nominal voltage According to VDE U0 /U 600/1000 V AC // 1800 V DC conductor/conductor - double insulated - Ozone resistant acc. to EN 50396 - Weather and UV resistant HD 605/A1 - Halogen-free EN 50267-2-1, EN 60684-2 Resistant to acid and bases EN 60811-2-1 Flame-resistant VDE 0482-332-1-2 DIN EN 60332-1-2, IEC 60332-1 Abrasion-resistant sheath DIN EN 5351 Resistant to short-circuits up to 200°C, short-circuits temperature 200°C/ 5 sec, service	m	500

		life - 25 years, Hydrolysis and ammoniac resistant, TuV certified		
	4mm DC Cables	Temperature range -40 °C to +90 °C, Max. temp. at conductor +120 °C, tin plated copper, Nominal voltage According to VDE U0 /U 600/1000 V AC // 1800 V DC conductor/conductor - double insulated - Ozone resistant acc. to EN 50396 - Weather and UV resistant HD 605/A1 - Halogen-free EN 50267-2-1, EN 60684-2 Resistant to acid and bases EN 60811-2-1 Flame-resistant VDE 0482-332-1-2 DIN EN 60332-1-2, IEC 60332-1 Abrasion-resistant sheath DIN EN 5351 Resistant to short-circuits up to 200°C, short-circuits temperature 200°C/ 5 sec, service life - 25 years, Hydrolysis and ammoniac resistant, TuV certified	m	600
	Aluminum Cables	1*300sqmm Armoured OVC insulated cables 600/1000V according to BS6346 and IEC60502-1 Annealed Copper or Aluminum Conductor according to IEC 60228 Insulation PVC type TI 1 according to BS6346 or Type PVC/A according to IEC60502-1 Bedding extruded black PVC Armor Aluminum wires for single core Sheating: PVC tpe TM 1 according to BS6346 or Type ST1 according to IEC 60502-1	m	300

Aluminum Cables	1*240sqmm Armoured OVC insulated cables 600/1000V according to BS6346 and IEC60502-1 Annealed Copper or Aluminum Conductor according to IEC 60228 Insulation PVC type TI 1 according to BS6346 or Type PVC/A according to IEC60502-1 Bedding extruded black PVC Armor Aluminum wires for single core Sheating: PVC tpe TM 1 according to BS6346 or Type ST1 according to IEC 60502-1	m	300
Copper Rod	Copper purity is 99.95%., Tensile strength over 600N/mm2, Lifetime 28 years, Rod Diameter 17.2MM length 1.2m	pcs	5
Flood Lights (Specify spec)	220-240V, 50Hz, Color temperature 6500K, Luminous flux 17,000 lm or higher, lifetime 30,000 hours or higher, IP65 or IP67, Temperature range -20...+55 °C, 1 year warranty	pcs	20
Cable tie 10cm	UV resistant compatible with DC cables above	pcs	400
Cable tie 30cm	UV resistant compatible with DC cables above	pcs	400
MC4 cables male and female 4sqmm	UV resistant compatible with DC cables above	pcs	200
MC4 cables male and female 6sqmm	UV resistant compatible with DC cables above	pcs	400
Inverter Manager	Compatible with Inverter specs above Suitable with existing system as per site visit - Same quality or higher	pcs	1
Switch for Inverter Manager	Data communications 8 RJ45 port DIN Rail Mount Unmanaged Ethernet Switch, 10Mbit/s, 100Mbit/s Suitable with existing system as per site visit - Same quality or higher	pcs	1

	Galvanized paint	Volume Solids (ASTM D2697) 46 ± 2% SPECIFIC GRAVITY 1.5 ± 0.05 Theoretical spreading range 11.5 - 9.2 sqm/Ltr Recommended Dry Film Thickness 40 - 50 microns/coat Recommended Wet Film Thickness 88 - 110 microns/coat Flash point 38°C	kg	3
	Earth cable 1*120sqmm soft drawn	1*120sqmm soft drawn bare copper conductor max temperature 80°C - max DC resistance per KM at 20°C is 0.1530hm - BS EN 60228 IEC 60228	m	50
	Earth cable 1*50sqmm soft drawn	1*50sqmm soft drawn bare copper conductor max temperature 80°C - max DC resistance per KM at 20°C is 0.3870hm - BS EN 60228 IEC 60228	m	50
	Earth cable 1*120sqmm plain annealed	1*120sqmm plain annealed copper stranded conductor with PVC T13 1.6mm insulation as per IEC 60227 Green and Yellow - Rated 450/750V max temperature 80°C - max DC resistance per KM at 20°C is 0.1530hm max AC resistance per KM at 20C is 0.19680hm - BS EN 60228 IEC 60228	m	50
	3*4sqmm cable	CU/XLPE/SWA/PVC	m	300
	2*2.5sqmm cable	CU/XLPE/SWA/PVC	m	300
	4*50sqmm cable	CU/XLPE/SWA/PVC	m	300
	1*150sqmm cable	CU/XLPE/SWA/PVC	m	300
	1*120sqmm cable	Earthing CU/PVC	m	300
	1*70sqmm cable	Earthing CU/PVC	m	300
	1*50sqmm cable	Flexible cable CU/PVC	m	300
	Data Cable	Cat6a Solid UTP Acc. to ISO/IEC11801 EN50173 EIA/TIA568-A CATEGORY 7 Flame retardant IEC60332-1-2 Smoke density IEC61034 Suitable with existing system as per site visit - Same quality or higher	m	300

Fiber Optic Cable	4 Core 9/125 Suitable with existing system as per site visit - Same quality or higher	m	300
PVC Pipes 50 Inch	UV resistant	m	200
PVC Pipes 32 Inch	UV resistant	m	200
PVC Pipes 25 Inch	UV resistant	m	500
PVC Pipes 20 Inch	UV resistant	m	500
Cable trunk 50*100mm	PVC Electric	m	50
Cable trunk 20*10mm	PVC Electric	m	50
Enclosures	Polyester Reinforced with Fiberglass IP65 With Canopy Height 1000mm - Width 750mm - Depth 320mm Tin plated Copper Busbars 30x5mm 3Phase and Earth		
2.5m steel pole	galvanized steel including concrete base	pcs	5
3m steel pole	galvanized steel including concrete base	pcs	5
Switchgear or any related internal component	36 kV, 2500A, (1000V breaker insulation) 25kA 1s-3s, peak 65kA/ 70/80 kV insulation, IP3X, Vacuum Circuit Breaker, -25 - 40°C, IEC62271-200 , IAC class) / IEEE Std C37.20.7 (1D-S class), IEC 62271-200, IEC 62271-102, IEC61243-5, IEC62271-1, IEC62271-200, IEC62271-103, IEC62271-102, IEC62271-100, IEEE C37.74, IEEE C37.20.3, IEEE 1247, IEEE C37.123, IEEE Std C37.20.4, IEEE C37.04, IEEE C37.06, IEEE Std C37.09, IEEE C37.20.7 For internal components shall be of same or higher quality as existing	pcs	1
1500 KVA transformer or any related component inside	Step up 415V/33kV ISO9001:2000 Complied with IEC 60076, IEC 60354, IDECO, EDCO, JEPSCO Working Temp up to 45 Hermetically sealed Tapping $\pm 2.5\%$ - $\pm 5\%$ Dyn11 Frequency 50Hz Oil immersed type, same quality or	pcs	1

		higher than the existing based on site visit		
	MV Cables	1*150sqmm 19/33(36) kV single-core Aluminum Class 2 XLPE Insulated, copper wire screen, hard drawn aluminum wire armor, PVC sheathe cable black to IEC60502-2:2005, IEC 60332-1,	m	85
	MV Cables	1*240sqmm 19/33(36) kV single-core Aluminum Class 2 XLPE Insulated, copper wire screen, hard drawn aluminum wire armor, PVC sheathe cable black to IEC60502-2:2005, IEC 60332-1,	m	10
	First Aid Kit	containing: Up to date first-aid manual list of emergency phone numbers Sterile gauze pads of different sizes adhesive med tape adhesive bandages (band-aids) in several sizes Elastic bandage Splint Antiseptic wipes Splint soap Antibiotic ointment antiseptic solution (like hydrogen peroxide) Hydrocortisone cream (1%) acetaminophen and ibuprofen tweezers sharp scissors safety pins disposable instant cold packs calamine lotion alcohol wipes or ethyl alcohol mouthpiece for giving CPR plastic non-latex gloves (at least 2 pairs)	pcs	3

	Fence	<p>Galvanized 2.7 meters high cross link fence consisting of 5.5cm*5.5cm*3.65mm with a 2 inch diameter and 2.8mm thickness and 3.5 total high steel pipes every 2 meters, 3 meters above the ground. 80cm steel angle 40*40*4mm bended forward at angle 45 degrees for the outside fence with 3 line of barbed wire to be fixed on top. 1 line of razor wire 1 meter diameter to be fixed between the fence. Supplying and installing a main 5x10 cm high bridge 3 meter total height supported with two steel pipes 2 inch diameter and 2.8 mm thickness for each H bridge for corners. Supply and install 4 lines horizontal wires 2.9mm diameter fixing, fittings and 50*50*50 cm minimum square concrete bases for the supports. Price must include constructed a tie foundation of 20 cm depth (10 cm above ground and 10cm underground)*15cm width along the fence (outside and inside) including all civil works, wood works, excavation and restoring the original surface. if the length of the fence exceeds 25 meters, two diagonal pipes have to be provided and installed to support the middle (for every 25m) all bracing pipes to be welded). Concrete foundation Spec 50cm*50cm*50cm hole filled with concrete mix with stones. Providing and casting a normal concrete (cement: fine aggregate: coarse aggregate ratio of 1:3:6) with minimum breaking load of 15MPA after 28 days, concrete curing at least of 3 day periods and all to complete the job, supply and install welded steel bar 40 cm length, 8mm diameter at the bottom of galvanized pipe 20cm</p>	m	100
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	Double Swing Gate	<p>5m width, 2m height - Delivery and installation within 24 hours including holdays</p> <p>Supply materials, equipment and labor for manufacturing if needed, a swing vehicle gate. Covering material is galvanized chain link fence consisting of 5.5cm*5.5cm*3.65mm. Price must include installing three 8cm strong heavy duty welded with H bridge (5*10cm), welding overlap between dor frame and h-bridge 16mm). A rubber wheel shall be installed for each part. Provide and install two crossing pipes for each side of the gate.</p> <p>Price must include installing concrete fottings 50*50*50 cm with steel support and two downward sliding locks of 12mm diameter</p>	pcs	1
	Double Swing Gate	<p>6m width, 2.5m height - Delivery and installation within 24 hours including holdays</p> <p>Supply materials, equipment and labor for manufacturing if needed, a swing vehicle gate. Covering material is galvanized chain link fence consisting of 5.5cm*5.5cm*3.65mm. Price must include installing three 8cm strong heavy duty welded with H bridge (5*10cm), welding overlap between dor frame and h-bridge 16mm). A rubber wheel shall be installed for each part. Provide and install two crossing pipes for each side of the gate.</p> <p>Price must include installing concrete fottings 50*50*50 cm with steel support and two downward sliding locks of 12mm diameter</p>	pcs	1
	Battery	12V 18Ah	pcs	9
	Charger	600W, 122Vdc, 230Vac (187-264Vac)	pcs	2

	Air Conditioner split unit	18,000 BTU - DC inverter technology - Ductless - 220-240V SEER / EER 20/12.5 HSPF / COP 10/3.35	pcs	1
	Fire Alarm Sensor	ceiling mounted, AA battery powered	pcs	3
	Mid clamp	Fix panel to structure - Aluminum/steel must be suitable with existing structure	pcs	200
	End clamp	Fix panel to structure - Aluminum/steel must be suitable with existing structure	pcs	200
	Cable lug	4mm cord end - 99% copper tin electro-plated	pcs	200
	Cable lug	6mm cord end - 99% copper tin electro-plated	pcs	200
	Fire extinguisher maintenance	CO2	pcs	9
	Fire extinguisher	CO2	pcs	3
License	Pay fees and/or renew license	Fully as per EMRC guidelines and provide documents and receipts to UNHCR	no.	2