

**ESTABLISHMENT OF FRAME AGREEMENT FOR the provision of
Maintenance, Operation and Monitoring Service of the Low voltage network in Zaatari Camp
and KAP Camp - Jordan**

Background:

UNHCR maintains the electrical networks inside Zaatari camp and KAP camp, for Zaatari camp, the camp divided into **12 districts** and each district contains **10 to 24 blocks** and average **80 Households** (shelters) for each block, with total of **16,000 shelters** inside the camp shaped by average total number of **20,000 caravans**, in addition to **800 shops** located in the two market streets.

Medium voltage network being managed by IDECO (Irbid district electricity company), where the MV network extend all around the camp and between the districts, each district contains **one** transformer with a total of **12 Electrical Transformers** for the shelters and **3 Electrical Transforms** for the shops, in addition to two transformer for the service areas.

The low voltage network which will be managed by the awarded bidder is supplying the needed energy to all shelters by an extended low voltage network shaped by main distribution boards, low voltage poles, MCCBs, and low voltage cables.

With **100%** of shelters connected to the grid **440 km of 3x10mm²** cables were stretched for each shelter for proper electrical network installation and electricity provision, **16,000 RCBOs** (residual current & over-heat breakers) for safety installed for each shelter, and with total of **2100 LED streetlamps** installed, **127 km of 70mm² earthing cables** stretched in the camp's electrical network and electrical panels to ensure the camp safety.

For KAP camp located in Ramtha city, where average of **147 shelters**, **7 organizations**, **1 clinic**, **police offices** and a **supermarket** all connected to LV network by number of main distribution boards, LV cables and poles supplied by one transformer and one backup generator.

The purpose of the Operation and Maintenance (O&M) for low voltage networks:

- 1) Maintain and operate the low voltage network.
- 2) Ensure safe and optimal operation of the network- safety through preventive and corrective maintenance.
- 3) monitor network status by analyze the loads and incidents to suggest the needed upgrades and recommendations.
- 4) Develop and carryout preventive maintenance activities.
- 5) Carryout corrective and breakdown maintenance.
- 6) Able to upgrade any part of the low voltage network (new network extension, new distribution bards, etc.)

As a general principle, the O&M management activities seek to guarantee and maximize performance of low voltage network and its safety.

Scope of work:

Provision of all O&M services needed to guarantee the optimal operation of the low voltage network including but not limited to operation and maintenance (corrective, preventive) of network parts, including electrical infrastructure and all connections, testing, staff, vehicles, tools, spare parts, consumable products, security, upgrades or new constructions, specialist repair services, etc. needed to perform the services. Minimum aspects are as follows:

1. Proposals for all needed preventive and corrective maintenance and tests:

- a. The vendor shall submit a full and detailed proposal showing the inspection components, inspection forms, daily, weekly and monthly reports forms, methodology, equipment, staffing preventive, corrective maintenance and tests and machinery, preventive Maintenance shall include periodic checking of the low voltage network components, with the replacement of consumable materials and the correction of those systems whose failure has been statistically predicted, and of those for which requirements for personnel and materials have been projected, the preventive maintenance activities shall include:
 - o Visual inspection.
 - o Confirmation of operation of all the electrical network devices.
 - o Confirmation of the integrity and performance.
 - o Confirmation of the Electrical condition of all the network components and suggested upgrades.
 - o Cleaning of the vegetation, grass as needs or as required by local site conditions of the electrical transformers to minimize fire risk, keep access to equipment open.
 - o Recording of the maintenance operations in a maintenance logbook and reports.
 - o To provide and maintain fire extinguishers for each transformer location and main distribution boards, following the standards.

The following table shows the O&M services, regular checks, and possible replacing (subjected to UNHCR Engineer approval) shall be done and respective inspection reports should be produced and submitted to UNCHR as per the below frequency:

- LV Network Regular Checks:

#	Task	Frequency
1	Check jumper clips status and replace the broken	Daily
2	Check clamps status and replace the faulty ones	Daily
3	Check suspenders status and replace the faulty ones	Daily
4	Check cable's sag	Daily
5	Check poles and correct the slopping poles	Weekly

6	Check poles and treat the rust if it found	Weekly
7	Check stays tension and replace or correct the faulty ones	Weekly
8	Check cable termination and insulation and replace or correct the faulty ones	Daily
9	Check all streets lighting units at all plots, markets and ring road lighting and replace or correct the faulty ones	Weekly
10	Balancing the loads of the transformer's phases	Weekly

- Consumer cables and connections regular checks:

#	Task	Frequency
1	Check jumper clips of consumer cables and replace or correct the faulty ones.	Daily
2	Check the consumer cables and insulate it with heat shrink if needed / Once a day and replace or correct the faulty ones.	Daily
3	Check the consumer cable fixation at the top of pole and shelter and replace or correct the faulty ones	Weekly
4	Check cable connection at the consumer unit and replace or correct the faulty ones	Weekly
5	Check cables tension and replace or correct the faulty ones	Monthly
6	Check earth leakage breaker and MCB breakers status and replace or correct the faulty ones	Monthly
7	Check consumer internal wiring and connections and correct or replace	Monthly

- Transformers rooms and Main distribution boards (MDB) Regular Checks:

#	Task	Frequency
1	Check the main circuit breaker status and replace or correct the faulty ones	Weekly
2	Check all the LV cables connections from starting from the transformer till the poles	
3	Check all second circuits' breakers status and replace or correct the faulty ones	Weekly
4	Check automated breakers status and calibration and replace or correct the faulty ones	Weekly
5	Check timers' status (battery and work status) and replace or correct the faulty ones	Weekly
6	Check (photocell, conductor, and three-position switches) status and replace or correct the faulty ones	Weekly
7	Check Copper cables lugs status inside the MDB (insulation and fixation) and replace or correct the faulty ones	Weekly

8	Check the control wires connection and status and replace or correct the faulty ones	Weekly
9	Check the bus-bars insulation and replace or correct the faulty ones	Weekly
10	Check holes at the bottom of MDB and close it suitably and replace or correct the faulty ones	Weekly
11	Check doors (locks, paint, hinges, and rubber) and replace or correct the faulty ones	Weekly

2. Corrective Maintenance and operation work:

The contractor shall submit an assessment report indicating the fault, the root cause, recommended solutions and cost for each option, with indicating the timeline for fixing the fault inside low voltage network components and shelters level.

The report shall be validated by UNHCR electrical engineers, these later will also confirm whether the fault it due to malfunction or misuse.

The contractor should fix the fault using UNHCR spare parts and materials. In case UNHCR runs out of stock of these spare parts, it shall be supplied by the Contractor based on the approved prices. The contractor shall ensure capacity and capability to also carry out the below activities, upon request by UNHCR Engineers:

#	Task	Frequency
1	Dismantling electrical materials from vacant or damaged shelters/Caravans, and store it in the bidder Storage Area	Upon request
2	Storage Area Inventory Count	Monthly
3	New internal wiring for the new vacant shelters/caravans	Upon request
4	Maintain the internal wiring for the damaged shelters/caravans	Upon request
5	Stretching new cables	Upon request
6	Connecting new caravan/shelters to the grid	Upon request
7	Installing LV poles	Upon request
8	Installing MDBs	Upon request
9	Disconnecting vacant caravans/shelters	Upon request
10	Provide technical assessment and BoQ	Upon request
11	Installing street Lights units	Upon request
12	Or any other upgrades/installation requests related to the LV network.	Upon request

3. Testing and reporting:

Regular testing and respective reports should be produced and submitted to UNCHR as per the below frequency.

(a) MDB testing: Once a Month

#	Task	Frequency
1	Volts: Phase to phase /phase to neutral / phase to earth / earth to neutral for all MDBs in the camp	Once a Month
2	Ampere: Measure the load (ampere) on each phase individually	Once a Month
3	Earth resistance in the MDB and Measure the earth resistance at earth bus bar	Once a Month
4	Continuity Tests for All Stretched Cables	Once a Month
5	Insulation Tests for copper cables	Once a Month
6	Thermal imaging test for MDBs	Twice a year

(b) Consumer unit testing:

Selecting random addresses thorough UNHCR electrical engineer, and make these measurements:

#	Task	Frequency
1	Volts: Phase to neutral / phase to earth / neutral to earth.	Once a Week
2	Ampere: Measure the load at chosen addresses by UNHCR engineer	Once a Week

(C)Earth system Tests:

#	Task	Frequency
1	Check the earth resistance in different locations (shelters, poles, MDB and Transformer Room) and conduct necessary actions for corrections	Once a Month
2	Check the earth resistance at the main ground point; it should be not more than 5 Ω (ohm) and conduct necessary actions for corrections	Once a Month
3	Check the earth connections and replace the broken clips	Once a Month

In case of earth faults, i.e., faulty readings more than 5 ohms, corrective measures shall take place to keep 5-ohm value at all locations by installing **35mm² copper rods, at a depth of 1.2 meters** well connected to the earthing network.

4. Performance Indicators

Maintenance and repair are critical functions that influence the overall quality of distribution service. Thus the contractor shall ensure and take all measures to comply with the following performance indicators:

- (1) **Service restoration time:** This is the time elapsed from when a disturbance occurs until service is restored to customers. Over a 12-month period, the average service restoration time shall be less than 12 hours per disturbance.
- (2) **% Unplanned outages/total outages:** The level of unplanned outages is an indicator of the quality of the distribution infrastructure and maintenance performance. However, both load shedding that occurs due to insufficient supply, and power interruptions sourced outside of the UNHCR, represents outages that do not reflect on maintenance performance. These outages shall be excluded for the measure of maintenance performance. Over a 12-month period, the ratio of unplanned outages to total outages shall not exceed 10%.

(D) Staffing, Tools and Vehicles:

The contractor shall provide the below qualified personnel as a minimum:

- 1 site Electrical Engineer for both sites, present every working day at the camps.
- 1 Electrical Foremen and 4 Technicians for both camps, present every working day at the camps.
- 2 certified Electrical cranes available on demand or when needed to implement the works as per the standards, with respond time max 24 hours to be present in the camp, and available on site during the predicted emergency times.
- 1 pickup available on site to support the works during Technicians movement in the camp.
- Team shall receive emergency calls during all electricity supply hours, from different parties including shelters owners, using the hotline number and respond accordingly.
- Personal Protection Equipment (safety shoes, type E helmet, google, electrical gloves, safety belt, isolated ladder, high visibility jacket, VDE tools), for all staff including Syrians if hired.
- Certified machines, testing tools earthing tester, insulation tester etc. which shall be complied with international standards, valid calibration/or validation reports for the measurement tools from a certified laboratory.

Please note that the indicated working days shall match the working days of UNHCR Jordan, for regular working days (Sunday to Thursday) from 8AM to 4PM -, and respond to emergency when need during all electricity supply hours

(E) Reporting:

Daily report:

Soft copy (Tabluar form PDF) of daily report (template to be agreed on with UNHCR technical team) shall be submitted to UNHCR through email. They shall include any activity carried out on that day (including maintenance and repairing works).

In addition, daily measurements for volts, ampere (PHASE TO PHASE / PHASE TO NEUTRAL / PHASE TO EARTH / EARTH TO NEUTRAL – AMPERE on each phase) at each MDB shall be included.

Weekly report:

The soft copy shall be submitted to UNHCR through email. They shall briefly include any activity carried out during the reporting period.

Monthly report:

The monthly reports shall be submitted on the first day of **each month** for the two camps separately. Hard copy to be submitted to UNHCR focal point; the soft copy shall be submitted to UNHCR through email. They shall include in details any activities carried out during the reporting period.

A sample report shall be submitted along with the bid. Upon contract award, the contractor shall submit the proposed draft report templates (daily, weekly, and monthly format) to be approved by UNHCR electrical engineer.

Additional Notes:

- 1- UNHCR owns spare parts for most of the key elements in the system, in case of shortage of spare parts, the vendor shall procure from the list of potential spare parts within tender documents, and the installation cost is to be included under the unit cost of the spare parts.
- 2- 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 the cleaning of any debris, wastes or other items created during these works.
- 3- Labor cost - in case of corrective maintenance - should be included in the prices of the monthly maintenance cost.
- 4- The awarded bidder shall maintain the warranty of the systems as per the manufacturers' warranty terms and keep all the documentation and reporting.
- 5- The awarded bidder shall follow up on the full process of the needed maintenance including but limited to the repair and return of the parts, spare parts availability when needed, shipping and customs process, etc.)
- 6- If any equipment was damaged due to inadequate maintenance or poor security & safety measures, the contractor shall be responsible for replacing and/or repairing them at their own expense. Also the contractor shall be responsible for covering the expenses of potential extended damage to equipment due to the inadequate maintenance or poor security & safety measures.
- 7- The Contractor shall detail all personnel requirements, security measures, scheduled equipment replacement, maintenance schedules and operational for each year.
- 8- The contractor is encouraged to employ Syrian Refugee Labor in the operation and maintenance of the low voltage network.

Environmental Considerations and disposal plan:

- 1- All packaging and wastes associated with the installations shall be carefully disposed of in accordance with the laws in Jordan (Article Number 6 – Environment Protection Law)
<https://www.ammanchamber.org.jo/Uploded/PRFiles/%d9%82%d8%a7%d9%86%d9%88%d9%86%20%d8%ad%d9%85%d8%a7%d9%8a%d9%87%20%d8%a7%d9%84%d8%a8%d9%8a%d8%a6%d9%87.pdf>
- 2- The contractor shall be responsible for ensuring the waste materials, packaging, and any other items associated with these installations, 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 contractor shall be charged to the contractor.

Estimated type of Spare Parts and Corrective Maintenance service for both camps (Annually):

Upon need, the contractor shall ensure availability of the below items (new) – including the installation service:

Item	Estimated Quantity per Year	Specifications
Low Voltage Poles 10m with all accessories	30	TUV Certified Galvanized 82-120 Micron Yield Strength N/mm ² 420-461 Tensile Strength N/mm ² 545-570 Elongation % 32-38
Low Voltage Poles 9m with all accessories	30	TUV Certified Galvanized 82-120 Micron Yield Strength N/mm ² 420-461 Tensile Strength N/mm ² 545-570 Elongation % 32-38
Steel cable stay	80	With all needed accessories 35 to 50 mm ² galvanized from 55-70 micro
Feeders Poles 12 m with all accessories	10	TUV Certified Galvanized 82-120 Micron Yield Strength N/mm ² 420-461 Tensile Strength N/mm ² 545-570 Elongation % 32-38
Low Voltage pole Concrete Base	50	According to Jordanian Civil Engineering Standard
LED Fixtures for the Plots Street 60W	100	90-260 Input Voltage 100 lm/W TUV Certified Heat Dissipation 4000 – 6000 K CE certified IP 65 50-60Hz
LED Fixtures for the Plots Street 30 W	100	90-260 Input Voltage 100 lm/W TUV Certified Heat Dissipation 4000 – 6000 K CE certified IP 65 50-60Hz
LED Fixtures for the Plots Street 90 W	100	90-260 Input Voltage 100 lm/W TUV Certified Heat Dissipation 4000 – 6000 K CE certified

		IP 65 50-60Hz
Cross Arm 2.5m with all needed accessories	100	Galvanized 45-55 Micron
Insulation plastic ring for lighting	150	For street lighting
LV 1x 300 mm2	300	CU/XLPE/SWA/PVC
LV 1x 70 mm2	100	CU/XLPE/SWA/PVC
LV 1x 120 mm2	300	CU/XLPE/SWA/PVC
LV 4x95+50mm2	100	CU/XLPE/SWA/PVC
LV 1x 185 mm2	100	CU/XLPE/SWA/PVC
LV 4X35mm2	100	CU/XLPE/SWA/PVC
LV 4x120+70mm2	100	CU/XLPE/SWA/PVC
LV 4x240+120mm2	100	CU/XLPE/SWA/PVC
LV 4x300+150mm2	100	CU/XLPE/SWA/PVC
LV4x400+240mm2	100	CU/XLPE/SWA/PVC
LV 4x185+120mm2	300	CU/XLPE/SWA/PVC
TWISTED 4AL (4X185 mm2)	400	ALLOY/XLPE
TWISTED 3AL+AL+AL. (3*150 mm2)+50+95	50	ALLOY/XLPE
TWISTED 3AL+AL+AL. (3*150 mm2)+50+95	100	ALLOY/XLPE
TWISTED 3AL+AL+AL. (3*120 mm2)+35+70	500	ALLOY/XLPE
TWISTED 3AL+AL+AL. (3*95 mm2)+25+50	100	ALLOY/XLPE
TWISTED 3AL+AL+AL. (3*70 mm2)+25+35	500	ALLOY/XLPE
TWISTED 3AL+AL+AL. (3*50 mm2)+16+25	100	ALLOY/XLPE

TWISTED 3AL+AL+AL. (3*35 mm2)+25+25	100	ALLOY/XLPE
TWISTED 3AL+AL+AL. (3*25 mm2)+25+25	100	ALLOY/XLPE
TWISTED 3AL+AL+AL. (3*10 mm2)	1000	ALLOY/XLPE
LV 3x4mm2	500	CU/XLPE/SWA/PVC
LV 3x6mm2	200	CU/XLPE/SWA/PVC
LV 3x2.5 mm2	200	CU/XLPE/SWA/PVC
LV 2x2.5 mm2	150	CU/XLPE/SWA/PVC
LV 5x16mm2 2	150	CU/XLPE/SWA/PVC
LV 4x25mm2+1x16mm2	150	CU/XLPE/SWA/PVC
LV 4x50mm2+1x25mm2	150	CU/XLPE/SWA/PVC
TWISTED 3AL+AL+AL. (3*16 mm2)+16+16	100	ALLOY/XLPE
TWISTED 3AL+AL+AL. (3*25 mm2)+25+25	150	ALLOY/XLPE
TWISTED 3AL+AL+AL. (3*50 mm2)+50+50	150	ALLOY/XLPE
10A MCB	30	
16A MCB	30	
RCBO	300	RCBOs shall be rated for 240Vac, 50Hz with breaking/making capacity of 120A rms, short circuit withstand current Icw of 2kA rms for 1 second, rated short circuit making capacity of 3kA peak and short circuit conditional current of 6A rms MCB's and RCBO's shall be rated for 230V/400V; 50Hz, short circuit capacity Ics/Icn of 6,000A

Consumer Unit	300	<p>Consumer units shall be surface mounted with IP3X-rated insulated housing with DIN rails for mounting of circuit breakers. Each shall be suitable for 230V, 50Hz electrical connections, 16sqmm2 solid-stranded cable terminations and shall have adequate wiring space and cable entry points. Each consumer unit shall contain, 10A MCB for lighting circuits, 16A MCB for socket circuits and shall have adequate space to house 2 No. additional MCB's.</p> <p>Consumer units shall be wall-mounted inside each shelter at a height of 2metres, close to the door as detailed on the drawings.</p>
18W LED bulb with Holder	100	E27 CRI 80 6500 K A+ 25,000 Hours
15W LED bulb with Holder	100	E27 CRI 80 6500 K A+ 25,000 Hours
2 gang PVC switch	100	10 Amp 250 V
1gang PVC switch	100	10 Amp 250 V
Earthing Rods	500	1 Copper purity is 99.95%. Tensile strength over 600N/mm2 Lifetime 28 years Rod Diameter 17.2MM
MCCB 400A	30	3Pole 100KA, adjustable
MCCB 250A	30	3Pole 50KA, adjustable
MCCB 200A	10	3Pole 50KA, adjustable
MCCB 100 A	20	3Pole, adjustable
MCCB 20A	10	3Pole 35KA
Contactora	30	7.5KW 18A AC.3
MCCB 160A	10	3Pole 36KA, adjustable
MCCB 1000A	20	3Pole 100KA, adjustable
MCCB 630A	20	3Pole 70KA, adjustable
MCCB 1600A	15	3Pole, adjustable
Base for Fuse 630 Ampere	50	630 A, 690 V, 50 Hz, IEC60269
Base for Fuse 400 Ampere	50	400 A, 690 V, 50 Hz, IEC60269

Base for Fuse 250 Ampere	50	250 A, 690 V, 50 Hz, IEC60269
connector isolation piercing	2000	16-150 mm ² / 16-120 mm ²
connector isolation piercing	500	16-120 mm ² / 16-185 mm ²
connector isolation piercing for lighting	1000	10 - 95 mm ² / 1.5 - 10 mm ²
connector isolation piercing for consumers Households	1000	10 - 95 mm ² / 1.5 - 10 mm ²
connector isolation piercing for consumers Households	1000	4- 95 mm ² /4 mm-120 mms
Raintight Photoelectric Control	30	208-277 V, 50/60 Hz, capacity = 3000 VA
AC contactors	30	110 A, Max fuse= 200A, short circuit= 5kA, NC7-9511, 230 V, 50/60 HZ, IEC/EN 60947-4-1
Suspension clamps and brackets	200	50 to 120 cables
Cable lug	100	300 mm ² for Cu cables
Cable lug	100	185 mm ² for Cu cables
Cable lug	100	120 mm ² for Cu cables
Cable lug	100	185 mm ² for AL cables
Cable lug	100	120 mm ² for Al cables
Cable lug	100	70 mm ² for Al cables
Cable lug	100	50 mm ² for Al cables
Cable lug	100	35 mm ² for Cu cables
Cable lug	100	50 mm ² for Cu cables
Cable lug	100	10 mm ² for Al cables
Cable lug	100	4 mm ² for Cu cables
Safety boots	15	Safety isolation, insulated, steel or safety toe, rubber outsole, anti-static
Safety gloves	15	Safety isolation of electrical direct and indirect, voltage
Safety belts	4	for electrical poles
Safety helmets	15	With light for electricians.
hydraulic lug crimping machine	2	Cables range between 35mm ² till 300 mm ²
vest for electricians	20	Antifire, water resistant
Voltage Detectors stick	1	designed for checking transmission lines, power distribution equipment, down power lines, fuses, and load break connectors
surface-mounted double-socket	20	TUV Certified 16A 230V IP42-rated 2P+E With Shutters
surface-mounted Single-socket	30	TUV Certified 16A 230V

		IP42-rated 2P+E With Shutters
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MDBs as below:

Distribution boards and switchgear necessary for the protection of cabling and equipment within the complete electrical installation in accordance with IEC 62271 and IP67-rated. This shall include for all necessary supports, steelworks, concrete etc. to properly complete the installation of these boards and connecting cabling. Main distribution board shall be installed at each transformer location. These shall be IP65-rated with key-lockable doors including all necessary supports, structures, glands etc. All distribution boards shall be designed with 20% additional space capacity for future installation of extra MCCB's. A separate MCCB shall be installed for each separate cable supplying electrical power to any building or area	4	within the complete electrical installation in accordance with IEC 62271 and IP67-rated. This shall include for all necessary supports, steelworks, concrete etc. to properly complete the installation of these boards and connecting cabling A main distribution board shall be installed at each transformer location. These shall be IP65-rated with key-lockable doors including all necessary supports, structures, glands etc. All distribution boards shall be designed with 20% additional space capacity for future installation of extra MCCB's. A separate MCCB shall be installed for each separate cable supplying electrical power to any building or area
Motor operator for MCCB'S	10	For MCCB 630 A 3 poles, 4X630A Front motor operator Plate for mounting and interlocking
630 Amp Fuse	10	Fuse Standard DIN 43620-1, DIN 43620-3, IEC 60269, VDE 0636 Voltage Rating 500 V ac 120 KA SC
500 Amp Fuse	10	Fuse Standard DIN 43620-1, DIN 43620-3, IEC 60269, VDE 0636 Voltage Rating 500 V ac 120 KA SC
315 Amp Fuse	10	Fuse Standard DIN 43620-1, DIN 43620-3, IEC 60269, VDE 0636 Voltage Rating

		500 V ac 120 KA SC
250 Amp Fuse	10	Fuse Standard DIN 43620-1, DIN 43620-3, IEC 60269, VDE 0636 Voltage Rating 690 V ac 65 KA SC
200 Amp Fuse	10	Fuse Standard DIN 43620-1, DIN 43620-3, IEC 60269, VDE 0636 Voltage Rating 690 V ac 65 KA SC
160 Amp Fuse	10	Fuse Standard DIN 43620-1, DIN 43620-3, IEC 60269, VDE 0636 Voltage Rating 690 V ac 120 KA SC
CABLE 1C X 185 MM2	200	CU/XLPE/PVC
CABLE 1C X 300 MM2	300	CU/XLPE/PVC
CABLE 4C X 185 MM2	200	CU/XLPE/PVC
Bolt with nut	1000	12 cm, 10 mm2
Clement	1000	For 10 mm2 AL cables or 4 mm2 Cu cables
Bolt self-drill	1000	10 cm
Plank wood	300	2.5 LM, 5cm * 10 cm
Self-drill screws	1000	3 cm
Steel cables stay welding	200	
Main MDB Busbar	10	Compatible case by case related to the MDB connections With all needed accessories
MCCB 630 A iron base with accessories	10	
Main Busbar for 250A MCCB	10	
Main Busbar for 1000 A MCCB	10	

Main Busbar for 400A MCCB	10	
Main Busbar for 1600A MCCB	10	
Main Busbar for 630 MCCB	10	
Cable entry busbar 630A with accessories	10	
Cable entry busbar 1000 A with accessories	10	
Cable entry busbar 1600 A with accessories	10	
Cable entry busbar 250 A with accessories	10	
Cable entry busbar 400 A with accessories	10	
Pole Dismantling, welding, and extension	50	
Earth pit	20	
Rod to clamp junction	20	
U Bolt Earth Rod Clamp	30	
Coupler	50	For 120 mm ² cables
Coupler	50	185 mm ² cables
Coupler	50	300 mm ² cables
Cable Gland 120 mm	50	
Cable Gland 150 mm	50	
Bentonite (Kg)	15	
Bolts	30	MCCB 630
Bolts	30	MCCB 250
Bolts	30	MCCB 1000

Bolts	30	MCCB 1600
Bolts	30	MCCB 400
PVC Pipe 20mm2 with accessories	50	3 meters
Pole clamps	100	10 meters poles
Pole clamps	100	9 meters poles
Pole clamps	50	Form MV poles
clamp PVC Pipe	50	20 mm
Tensions cable clamp	100	3*10 mm2 AL cable
Tensions cable clamp	100	3*4 mm2 Cu cable
Rubber clamp for cables fixation	100	3*10 mm2 AL cable
Rubber clamp for cables fixation	100	3*4 mm2 Cu cable
Heat shrinks	400	For 185 mm2 cables, Red/blue/green
Heat shrinks	200	For 120 mm2 cables, Red/blue/green
Dead end clamp	100	
Distribution board	10	Included all accessories, CB 10A * Qty 5, Isolator 2P 63A IP 65 waterproof
Tensions cable clamp	100	For 120 mm2 AL cable
Cable tie	200	For 120 mm2 + 10 mm2 cables
Suspender	100	
End cap (Plastic)	100	For Network cables (185mm2 +120 mm)
End Cable Clamp	100	

End pole camp (ring) line end	50	9 meters poles
Current transformer	20	MCCB 1600
Current transformer	20	MCCB 1000
Bolt with nut	1000	6 mm
Current transformer	20	MCCB 630
Cable joint	100	185 mm ² cable AL, 120 mm ² Cable AL
Room master locks	30	Master large locks
Electrical tape	100	Standard, high quality
Isolation tape for electrical cables	100	High quality

Storage Area / Site in the camp:

In addition, the contractor shall submit on weekly basis a storage area inventory report. UNHCR will identify a site for the contractor inside the camp to store the vehicles and materials.

It is understood that Security, access to electricity, water, Wi-Fi are at the charge and responsibility of the contractor.

The contractor shall ensure the service in all areas of the Camps:

Zaatari Camp:

District	Transformer
District 1	1000 KVA (Trans 1)
District 2	1000 KVA (Trans 1)
District 3	630 KVA (Trans 1)
District 4	630 KVA (Trans 1)
District 5	630 KVA (Trans 1)
District 6	630 KVA (Trans 1)
District 7	630 KVA (Trans 1)
District 8	630 KVA (Trans 1)
District 9	630 KVA (Trans 1)
District 10	630 KVA (Trans 1)
District 11	1000 KVA (Trans 1)
District 12	630 KVA (Trans 1)
Market 1	630 KVA (Trans 1)
Market 2	630 KVA (Trans 1)
Market 3	630 KVA (Trans 1)
Base camp area	250 KVA (Trans 1)
Reception and registration area.	250 KVA (Trans 1)
KAP camp	630 KVA (Trans 1)
Total	18
	20,000 Caravans