



**UNITED NATIONS DEVELOPMENT PROGRAMME**

**ITB 2017-078**

## **Bill of Quantities**

**Project name:** Package 2: External Lighting

**PAL10-00099398 / Rehabilitate GIE Infrastructure**



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Rehabilitation and Consolidation  
of the Gaza Industrial Estate (RCGIE)



Funded By: European Union

Rehabilitate GIE Infrastructure / External Lighting					
ITEM No	DESCRIPTION	UNIT	QTY.	RATE (US\$)	AMOUNT (US\$)
<b>General</b>					
	<p>*All installation works must be according to technical specifications, drawings, and engineer's instruction.</p> <p>*The location of external lighting poles will be determined during the work days. The contractor will make the necessary work shop drawings for approvals prior to commencement of any activity.</p> <p>The Price of the following items shall include but not limited to the following :</p> <p>1- The costs of sampling , testing and production of workshops as well as as-built drawings according to technical specifications and work requirement and to the approvals of supervisor engineer.</p> <p>2-All equipments, Cranes, machines, ... etc. needed for proper execution and completion of work activities.</p> <p>3- Encasing all water, sewage water pipes or any other facilities that intersects with the concrete foundations of the steel poles with UPVC SN8 pipes of diameters 2" more than the diameter of the existing facilities. In case of important facilities such as pressure lines the encasement must be steel sheets of 2 mm thickness Ω-shape over the existing facilities as per supervisor instruction.</p> <p>4- Dismantling, and reinstating the existing paving layers ( Interlock, cement tiles , asphalt, ...etc.) as well as the soil layers at the places of excavation of cables , new or removed wooden or steel poles. The price also includes supplying and replacing the damaged interlocks, tiles, asphalt, .. etc By new materials to match the existing one and including new basecourse layer at least 20cm in side walk and 30 cm thick in carriage way.</p> <p>5- The exact quantities of all materials will be determined during the implementation of the Works.</p> <p>6- Preparation of proper access to the work site as may deemed necessary.</p> <p>7- Dismantling and removal of any damaged external Lantern , poles , wires, surplus materials,... etc or any equipments or materials like MV Disconnectors , RMU ,transformer , then transport to locations nominated by engineer.</p> <p>8- Laying of cables includes excavation of necessary trenches in the size as per drawings and bedding 10 cm with safia sand, backfilling with safia sand in layers not exceeding 25 cm. workes includes all needed materials for laying, watering and compaction .</p> <p>9- All materials and works must be according to GEDCo specifications and instructions ,where, obtaining approval of GEDCO is pre-requisite to starting any activity.</p> <p>10- The price also includes dismantling any existing materials like MV disconnector , CTC , CTCC , and reinstall it the proposed pole or room as per Engineer's instructions.</p>				



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	<p>11- The contractor should include in the price an inspection visit for the manufacturing factories and carry on the tests for the unit before delivery to Gaza, the cost will cover all travelling, visas, transportation and other logistics for three persons. In case of the traveling is impossible, the contractor shall include in his price the cost of recruiting the expert third party for inspection and cover all travelling, visas, transportation and other logistics for one UNDP engineer to witness and certify the tests.</p> <p>12- All needed materials, personnel and works that are deemed necessary for the safety during implementation along with all communication needed with GEDCO to coordinate for activities. Safety plan and implementation of its items will be pre-requisite to commence any relevant activities according to Engineer's approval and instructions.</p> <p>13- The price should include commissioning works for electricity network system and operating all the new and the existing networks to complete the job according to the GEDCO specifications.</p> <p>14- The Resistance of total earthing system must be less than 5 <math>\Omega</math>, and the contractor must find and do the all solutions to be &lt; 5 <math>\Omega</math> according to the specifications.</p>				
1	<b>Installation of MV Disconnectors with Steel Arms on the existing Poles</b>				
1.1	Supply & Install Hot Galvanized Auxiliary Steel Arm K160/3_B, the Item Include Steel Bolts, Nuts & Washers & springs with all needed for Fixing & Installation.	No.	2		
<b>Total of Page 1 - Installation of MV Disconnectors with Steel Arms on the existing Poles - US\$</b>					



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ITEM No	DESCRIPTION	UNIT	QTY.	RATE (US\$)	AMOUNT (US\$)
1.2	Supply & Install Hot Galvanized Auxiliary Arm K1558 , the Item Include Steel Bolts , Nuts & Washers with all needed to Fixing & Installation .	No.	1		
1.3	Supply & Install Hot Galvanized Auxiliary Steel Arm K166/1, the Item Include Steel Bolts, Nuts & Washers with all needed to Fixing & Installation.	No.	1		
1.4	Supply & Install Hot Galvanized Auxiliary Steel Arm K12171/1 , the Item Include Steel Bolts , Nuts & Washers & springs with all needed for Fixing & Installation .	No.	1		
1.5	Supply & Install Hot Galvanized Auxiliary Steel Arm K12171/2 , the Item Include Steel Bolts , Nuts & Washers & springs with all needed for Fixing & Installation .	No.	1		
1.6	Supply & Install Overhead Line Pin Type Polymer Insulator with Creepage Distance 1050 mm Complete (Set for one Phase) with all needed to Fixing & Installation .	No.	3		
1.7	Supply & Install Outdoor Metal Oxide Surge Arrestor M.C.O.V 19.5 KV with Ground Lead Disconnector included Brackets and Cable (Set for one phase), the Item Include Earthing Wire PVC CU 70 mm2 , Compression Lugs , Clamps and all needed Accessories for Fixing & Connection .	No.	6		
1.8	Supply & Install Fittings to Protection the M.V cables on the steel poles, the item includes 2 cable Guard , 3Steel Plates, 6 Cable Holder, Steel Bands with Buckles and all needed to Fixing on the Pole.	Set	2		
1.9	Supply & Install 36 kV Isolating Switch with built-in arc interrupter , the Item Include Master lock key , Compression Lugs , Steel Bolts , Nuts & Washers & Springs , Earthing Cable and Earthing Connection Clamp with all Fittings & Accessories needed for Operation ,Fixing & Installation according to specifications & instructions . Also include dismantling the existing disconnector and reconnect with the existing network	No.	2		
Total of Page 2 - Installation of MV Disconnectors with Steel Arms on the existing Poles - US\$					
Total of Installation of MV Disconnectors with Steel Arms on the existing Poles - US\$					



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ITEM No	DESCRIPTION	UNIT	QTY.	RATE (US\$)	AMOUNT (US\$)
2	<b>Installation of MV cables and its accessories</b>				
2.1	Supply,insall,connect, test and operate 12/20 kV 3-Single Core Cable with XLPE Insulation and Aluminum Circular Stranded Conductor <b>3*( 1x400/25)</b> mm2 AL ,according to GEDCo Specifications. The work also includes all needed civil works like excavation trench in any type of soil with 80 x 115 cm ,backfilling with safia sand , first layers 50cm deep , then supply & install 45x45x5cm concrete slabs with flexural strength (5 Mpa), along with 5 cm thick safia sand topped with warning tape. then backfilling with safia sand upto the pavement layers. The work includes watering & compaction to 100% each layer with maximum 25cm depth . <b>, (the supply of materials will be according to M.V Cables General Specifications and Technical Guarantees No. XLPEA_400)</b>	L.M	540		
2.2	Supply & Install 630A , 24 kv Indoor Screened Separable Termination Kit for 12/20 kv XLPE Cable 1x400/35 mm2 , (Set for one Phase) with all needed to Fixing & Connection . <b>, (the supply of materials will be according to M.V Cables General Specifications and Technical Guarantees No. IT24_400)</b>	No.	6		
2.3	Supply & Install 36 Kv Heat Shrinkable Outdoor Termination Kit for XLPE Cable 1x400 mm2 (Set for one Phase) with Mechanical Lug Steel Bolts , Nuts & Washers and all needed to Fixing & Connection . <b>(the supply of materials will be according to M.V Cables General Specifications and Technical Guaranteess No.OT36_400)</b>	No.	6		
2.4	Supply & Install 24 Kv Heat Shrinkable Straight Joint for XLPE Cable 1x400/25 mm2 , (Set for one Phase) the Item Include Bimetallic Mechanical Joints with all needed for Fixing & Connection . (The supply and installation shall be according to GEDCo specifications and Instructions) <b>, (the supply of materials will be according to M.V Cables General Specifications and Technical Guarantees No.SJ24_400)</b>	No.	2		
<b>Total of Installation of MV cables and its accessories - US\$</b>					



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ITEM No	DESCRIPTION	UNIT	QTY.	RATE (US\$)	AMOUNT (US\$)
3	<b>Installation of External Lighting System</b>				
3.1	Supply, Install , Connect and Test external lighting Control Panel box , as the following: The panel must be made of water proof fiberglass , (80*60*25 cm) size, including : LTL 3*100/63A , 3ph KWHM , NZMB1 3*63A , 3A Kaga photocell ,(no. 3) Moller Contactors DIL/M65 30KW , PSK Timer , over/under voltage relay protect ,triple switches , MCB's , wires , busbars , all according to the drawings & all needed connectors and accessories. The item includes supplying & installing Cables Guards to protect the cables, and Cable Holders to fix the cables . All works must be According to specifications and supervisor Instructions. Type is (Moeller , Hager or equivalent)	Unit	2		
3.2	Supply, install, connect and test complete street lighting lantern unit High-pressure die cast aluminum housing with powder coated finish for corrosion resistance, Vacuum-coated inner surface reflector optimizes lumen output photocell maximizes saving energy 120W rectangle induction or LED lamp with high lumen efficiency, LED luminous efficiency >100 lm/w Power Factor >0.95 CRI (color rendering index) >80 Light Distribution Curve/Beam Pattern Bat Wing / Rectangular Beam Color Temperature 3000-4000K(WW) Working Temperature -30.C-+50.C Housing Material Aluminium Alloy Input Voltage AC and DC inputs LED Chip PHILIPS leds Total lamp lumen>12000 lm lamp's Efficiency >90% THD <15% Guard Level IP66 Service lifespan 50,000hrs Type is (Philips, Gaash or equivalent)	No.	90		
3.3	Supply, install, connect and test complete street lighting lantern unit 400W- HPS-220V , complete with all needed - HPS 400W lamp (type Osram or equivalent), Luminous Flux Rating 56700 Lumen.- NYY cable 3X2.5 mm2, connecting cable from terminal board to the lantern , the work include removing the old one	No.	140		
3.4	Supply & install XLPE/CU/PVC cable (5x25 mm2) from control switchboards bus bars to the first pole terminal blocks, including cable glands, cable terminals tightening plastic ties and all accessories.	L.M	500		
3.5	Supply & install XLPE/CU/PVC cable (5x16 mm2) from control switchboards bus bars and pole to pole terminal blocks, including cable glands, cable terminals tightening plastic ties and all accessories.	L.M	2000		
3.6	Supply, install and connect underground Ø 3"PVC flexible , yellow warning tapes (Arabic – English), the work includes excavation, back filling with clean safia sand in layers not exceeding 25cm under and over the conduit as shown in the drawings, specifications and the engineer's instructions.	L.M	2500		
<b>Total of Page 1 of Installation of External Lighting System - US\$</b>					



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ITEM No	DESCRIPTION	UNIT	QTY.	RATE (US\$)	AMOUNT (US\$)
3.7	Supply install and test complete earthing manhole Ø60 cm for external lighting networks with cast iron cover (8ton capacity). Including excavation and all necessary fitting to satisfy the job unit with Electrodes, joint, clamps copper insulated conductors, P.G clamp to give a resistance less than 5 ohm with all accessories according engineer instructions.	No.	6		
3.8	Supply, install and connect hot galvanized octagonal steel lighting pole, 12m long (one piece ), the door cover is connected to the pole by galvanized steel chain, with all accessories according to drawings and supervising engineer's instructions. The work also includes Supply, install :- hot galvanized base with 80*80*100cm B250 concrete foundation , -operation unit inside the pole with fiber glass plate 17cmx40cmx0.5cm at minimum, CB's 6A All works according to drawing and engineer instruction.	Unit	50		
3.9	Supply, install and connect hot galvanized steel single arm 60-100cm long- Ø 2" complete with all accessories according to drawings and supervisor engineer instructions.	No.	30		
3.10	Supply install and fixing Ø2" diameter 3mm thick hot galvanized double steel arm, angle shaped 15-20 degree,1-1.6m long, with the necessary bolts and nuts, as per drawings, specifications and engineer's instructions.	No.	15		
3.11	Supply install and fixing 2" diameter 3mm thick hot galvanized triple steel arm, angle shaped 15-20 degree,1-1.6m long, with the necessary bolts and nuts, as per drawings, specifications and engineer's instructions.	No.	15		
3.12	Reinstall the existing external lighting pole , the work includes supply and install new Lattice steel base as the drawing , with B250 concrete foundation 80*80*100 cm with all needed workman ship and materials to complete the job.	Unit	5		
3.13	Supply & lay (two ) UPVC pipes (SN8- 8") at cross road trenches. The work includes excavation and backfilling as specifications and as per drawing and supervisor instruction	L.M	30		
3.14	Supply & lay (one ) UPVC pipe (SN8- 8") at cross road trenches. The work include excavation and backfilling as specifications and as per drawing and supervisor instruction	L.M	30		
3.15	Supply & lay (two) UPVC pipe (SN8-8") at cross road trenches. The work includes supplying and casting concrete B250 around the pipe as per drawing and supervisor instruction & the concrete width dim. 80cm on width & 60cm on depth laying cables inside the pipes	L.M	30		
Total of Page 2 of Installation of External Lighting System - US\$					
Total of Installation of External Lighting System - US\$					



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ITEM No	DESCRIPTION	UNIT	QTY.	RATE (US\$)	AMOUNT (US\$)
Summary					
Item	Description	Amount (US\$)			
1	Total of Installation of MV Disconnectors with Steel Arms				
2	Total of Installation of MV cables and its accessories				
3	Total of Installation of External Light System				
	<b>Total of External Lighting</b>				
	Discount Rate ( %)				
	Discount Amount				
	<b>Net Total</b>				

NET TOTAL SUM (in words):

SIGNED AND SEALED :

AUTHORIZED :

TITLE :

SIGNATURE :

DATE :