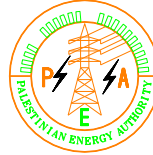


## Rehabilitation of Electricity Power Distribution Network in three areas in the Gaza strip (GS) PAL-10-00098764



من الشعب الياباني  
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**Bill of Quantity : Package2 - Lot 1**

**Package 2 Lot1- Installation , Connection and Concrete Works in Beit Hanoun  
Governorate**

## Bill of Quantity : Package 2 Lot1- Installation , Connection and Concrete Works in Beit Hanoun Governorate

Item	Description	Unit	Qty.	Unit Rate (US\$)	Amount (US\$)
<b>Part 1 : Installation , Connection and Testing</b>					
	<p>All installation works must be according to GEDCO technical specifications, drawings, and engineer's instruction. Price shall include the following:</p> <p>1- All equipments, machines, ... etc. needed for proper execution and completion of work activities.</p> <p>2- Excavation, Backfilling, and casting concrete B250 for steel poles bases along with relevant tests of concrete compressive strength cubes.</p> <p>3- Wooden shutter to all concrete bases of the steel poles in all soil types.</p> <p>4- Encasing all water, sewage water pipes or any other facilities 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>5- Dismantling, and reinstating the existing paving layers ( Interlock, cement tiles , asphalt, ...etc.) as well as the soil layers at the places of wooden or steel poles. The price also includes replacing the damages interlocks, tiles, asphalt, .. etc to with new materials to match the existing one as per supervisor instruction.</p> <p>6-Excavation and backfilling with approved material for wooden poles.</p> <p>7-Leveling, adjusting and tiling the top surface of the foundations for the removed steel or wooden poles to match the existing status.</p> <p>8- Preparation of proper access to the work site as may deem necessary.</p> <p>9- Repairing of all damages may occur to the existing facilities during the implementation according to the technical specification and the engineer's instructions.</p> <p>10- Dismantle and removal of any damaged poles , wires, surplus materials,... etc. then transport to locations nominated by engineer.</p> <p>11- All necessary tests according to the technical specification and the engineer's instructions.</p> <p>12-Transfer all surplus materials to the agreed dump sites according to supervisor instruction.</p> <p>13- All necessary shop drawings and as built drawings to the engineer's approval.</p> <p>14- All materials and works must be according to GEDCo specifications</p>				
<b>1</b>	<b>Installation of Steel Poles</b>				
1.1	Install Hot Galvanized Lattice Steel Pole 90/110 12m long , the Item Includes Installation of Steel Base 2.25m long ,with Excavation, Backfilling, and supply with Casting reinforced Concrete Foundation (2.2*2.2*2)m3 B250 to fix the Base , Steel Bolts , Nuts , Washers with install and connect Earthing Unit include 2-meter wire PN CU PVC Yellow/Green, 3 Earth Rods, 2 Earth Rod Joints, Earth Rod Connection Clamps & Compression Lugs, Steel Bolts with all needed Accessories for Fixing & Connection as per Specifications and Engineer Instructions. (The Earth Resistance should be less than 5 ohm).	Unit	1		
1.2	Install Hot Galvanized Lattice Steel Pole 80/90 12m long , the Item Include Installation of Steel Base 2.25m long ,with Excavation, Backfilling, and supply and Casting reinforced Concrete Foundation (1.95*1.95*2)m3 B250 to fix the Base , Steel Bolts , Nuts , Washers with install and connect Earthing Unit include 2-meter wire PN CU PVC Yellow/Green, 3 Earth Rods, 2 Earth Rod Joints, Earth Rod Connection Clamps & Compression Lugs, Steel Bolts with all needed Accessories for Fixing & Connection as per Specifications and Engineer Instructions. (The Earth Resistance should be less than 5 ohm).	Unit	1		
1.3	Install Hot Galvanized Lattice Steel Pole 70/80 12m long , the Item Include Installation of Steel Base 2.25m long,with Excavation, Backfilling, and supply and Casting reinforcedConcrete Foundation(1.7*1.7*2)m3 B250 to fixing the Base , Steel Bolts , Nuts , Washers with install and connect Earthing Unit include 2-meter wire PN CU PVC Yellow/Green, 3 Earth Rods, 2 Earth Rod Joints, Earth Rod Connection Clamps & Compression Lugs, Steel Bolts with all needed Accessories for Fixing & Connection as per Specifications and Engineer Instructions. (The Earth Resistance should be less than 5 ohm).	Unit	10		
1.4	Install Hot Galvanized Channel Steel Pole U14 12m long , the Item Include Installation of Steel Base 2.15m long ,with Excavation, Backfilling, and supply and Casting reinforced Concrete Foundation(1.4*1.4*2)m3 B250 to fix the Base , Steel Bolts , Nuts , Washers with all needed Accessories for Fixing & Connection as per Specifications and Engineer Instructions.	Unit	7		
1.5	Install Hot Galvanized Channel Steel Pole U14 , 9m long , the Item Include Supply and Casting reinforced Concrete Foundation(1.4*1.4*1.5)m3 B250 to fix the Pole with install and connect Earthing Unit include 10-meter wire PN PVC Yellow/Green, 2 Earth Rods, Earth Rod Joints, Earth Rod Connection Clamps & Compression Lugs, Steel Bolts with all needed Accessories for Fixing & Connection as per Specifications and Engineer Instructions. (The Earth Resistance should be less than 5 ohm).	Unit	11		

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**Bill of Quantity : Package 2 Lot1- Installation , Connection and Concrete Works in Beit Hanoun Governorate**

Item	Description	Unit	Qty.	Unit Rate (US\$)	Amount (US\$)
<b>2</b>	<b>Installation of L.V Wooden Poles</b>				
2.1	Install Wooden Pole 8.5 - 9 m Long, with all needed for Fixing & Installation. the Item Includes excavation (0.35x0.35x1.5) m in any type of soil, backfilling using the clean excavated material and cleaning of the site. The item includes Dismantling all damaged old wooden poles and Returning to the GEDCo's Warehouse..	No.	10		
<b>3</b>	<b>Installation of Steel Arms</b>				
3.1	Install Hot Galvanized Lattice Pole Tension Central Arm K2 , the Item Include Steel Bolts , Nuts & Washers with all needed for Fixing & Installation .	No.	1		
3.2	Ditto But K9 (Single)	No.	1		
3.3	Install Hot Galvanized Lattice Pole Tension Side Arm K61 , the Item Include Steel Bolts , Nuts & Washers with all needed for Fixing & Installation .	No.	1		
3.4	Ditto But K63	No.	1		
3.5	Ditto But K12801	No.	1		
3.6	Ditto But K7972	No.	1		
3.7	Ditto But K10601C	No.	2		
3.8	Ditto But K10354C	No.	4		
3.9	Ditto But K10155C	No.	1		
3.10	Ditto But K10045C	No.	2		
3.11	Install Hot Galvanized M.V Switch side Arm K1555 , the Item Include Steel Bolts , Nuts & Washers with all needed for Fixing & Installation .	No.	3		
3.12	Ditto But K1558	No.	7		
3.13	Install Hot Galvanized Auxiliary Arm K1743 , the Item Include Steel Bolts , Nuts & Washers with all needed for Fixing & Installation .	No.	7		
3.14	Ditto But K167	No.	1		
3.15	Ditto But K160/3A	No.	1		
3.16	Ditto But K160/3B	No.	22		
3.17	Ditto But K166/1	No.	3		
3.18	Ditto But K18 for Earth Line	No.	8		
3.19	Install Hot Galvanized Protection Arm K81 (Set for three phase) , the Item Include Steel Bolts , Nuts & Washers with all needed for Fixing & Installation .	Set	24		
3.20	Ditto But K82	No.	4		
3.21	Install Hot Galvanized Anti-Climbing Steel Arm K113/8 , for L.S.P	Set	12		
3.22	Install Hot Galvanized Anti-Climbing Steel Arm K78/2 , for C.S.P	Set	7		
3.23	Install Hot Galvanized L.V Steel Pole Arm K202 , the Item Include Steel Bolts , Nuts & Washers with all needed for Fixing & Installation .	No.	3		

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Item	Description	Unit	Qty.	Unit Rate (US\$)	Amount (US\$)
<b>4</b>	<b>Installation of M.V Insulators</b>				
4.1	Install M.V Polymer Suspension Insulator with Pin and all needed for Fixing & Installation.	No.	67		
4.2	Install 3 Glass Insulator and Half Moon for transformers with all needed for Fixing & Connection.	Unit	9		
4.3	Install Tension Unit, the Item Include 1 Tension Composite Polymer Insulator, Steel Twisted Clamp, Fork Ball Hook or Half Moon and Dead End Clamps with all needed for Fixing & Connection.	Unit	14		
4.4	Install Low Tension Shackle Insulator Unit Complete for Earth line with all needed for Fixing & Connection.	Unit	13		
<b>5</b>	<b>Installation of M.V Wires</b>				
5.1	Install, Connect and Test Wire ACSR 3x(1x150/25)+1x(1x50/8) mm2 , the Item Include Non Tension Clamps , Distribution Ties , Compression Lugs , Joints & Steel Bolts and all needed for Fixing & Connection and including Dismantling the Existing old and damaged networks and Returning to the GEDCo's Warehouse.	Km	0.04		
5.2	Install, Connect and Test Wire ACSR 4x(1x50/8) mm2 , the Item Include Non Tension Clamps , Distribution Ties , Compression Lugs , Joints & Steel Bolts and all needed for Fixing & Connection as per Specifications and Engineer Instructions.	Km	0.71		
<b>6</b>	<b>Installation of M.V Cables &amp; Accessories</b>				
6.1	Fitting & Protection the cables on the steel poles the item includes installation of 2 cable Guard to protect the cables, 3 Steel Plates and 6 Cable Holder to fix the cables, with all needed for Fixing & Connection as per Specifications and Engineer Instructions.	Set	16		
6.2	Install, Connect and Test 36 kv Heat Shrinkable Outdoor Termination Kit For 1x120/16 mm2 XLPE Cable (Set for one Phase) with Suitable Compression Lugs and all needed for fixing and Connection as per Specifications and Engineer Instructions.	No.	36		
6.3	Install, Connect and Test 36 kv Heat Shrinkable Outdoor Termination Kit For 1x400/35 mm2 XLPE Cable (Set for one Phase) with Suitable Compression Lugs and all needed for fixing and Connection as per Specifications and Engineer Instructions.	No.	12		
6.4	Install Connect and Test Heat Shrinkable Straight Joint For 24KV 1x120/16 mm2 XLPE Cable (Set for one Phase) including Joints and all necessary for fixing and connection as per Specifications and Engineer Instructions.	No.	10		
6.5	Install Connect and Test Heat Shrinkable Straight Joint For 24KV 1x400/35 mm2 XLPE Cable (Set for one Phase) including Joints and all necessary for fixing and connection as per Specifications and Engineer Instructions.	No.	5		
6.6	Install, Connect and Test three Surge Arrestors (Set for three phase), the item include Install and Connect earthing wires, clamps, Compression Lugs, steel bolts and all necessary for fixing and connection as per Specifications and Engineer Instructions.	Set	12		

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Item	Description	Unit	Qty.	Unit Rate (US\$)	Amount (US\$)
<b>7</b>	<b>Installation of L.V Cables &amp; Accessories</b>				
7.1	Install and Connect and Test ABC Cable 3*150+1*95+2*25 the Item include Tension, Suspension, Tap Connector Clamps, Sealing Caps, Hooks, Compression Lugs, Joints, Steel Bolts, all needed for Fixing & Connection and the item include connecting the existing customers with the network, in addition Dismantling the Existing L.V networks, L.V wooden poles, accessories and Returning it to the GEDCo's Warehouse as per Engineer Instructions.	Km	2.13		
<b>8</b>	<b>Installation of Transformer</b>				
8.1	Install and Connect and Test 22/0.4 kV , 630 kVA Low Losses Outdoor Pole Mounted Distribution Transformer , the Item Include Installation of Transformer Arm K183, Transformer Clamps K188, K183/1, Fuse Holders, Glass Fuses, Solid Copper Wire 25mm2, installation and connection transformer necessary Earthing wires with all needed for Fixing & Installation as per Specifications and Engineer Instructions.	No.	9		
<b>9</b>	<b>Installation of L.V &amp; M.V Disconnectors</b>				
9.1	Install, Connect and Test 36 kV Switch Disconnector (Isolating Switch) with built-in arc interrupter, key lock, Connection earthing wire with the pole, Compression Lugs, Clamps, needed wires for Connection with existing M.V Network and all needed Accessories for Fixing & Installation as per Specifications and Engineer Instructions	Set	9		
9.2	Install, Connect and Test LTL Low Voltage Switch Disconnector, the Item Include Fuses, Compression Lugs, Steel Bolts, Nuts, Washers with all needed for fixing, installation and Cables connection as per Specifications and Engineer Instructions	Set	26		
<b>10</b>	<b>Installation of Earthing and Stay Units</b>				
10.1	Install, Connect and test Earthing Unit for L.V Network near wooden poles, the Item Include 10m Earthing wire, 2 Earth Rods, Rod Joint, Earth Rod Connection Clamp and tap connector with all needed for Fixing & Connection as per Specifications and Engineer Instructions.	Unit	1		
10.2	Install, Connect and test Earthing Unit for Existing steel Poles, the Item Include Earthing wire , 3 Earth Rods, 2 Rod Joint and Earth Rod Connection Clamp with all needed civil works as per Specifications and Engineer Instructions.	Unit	1		
10.3	Install Stay Unit , the Item Include stay Wire, Tension Clamps , Stay electrode , stay Porcelain strain insulator and Stay Concrete Base with all needed Accessories for Fixing & installation	Unit	1		
<b>11</b>	<b>Dismantling and Reinstallation Works</b>				
11.1	Dismantling, Reinstalling and connecting the existing transformer with transformer arm, transformer clamps, L.V Switches and all accessories within the borders of the project according to the engineer's instructions.The prices include all the required workmanshipm, transportation ,machinery,...etc for installation according to engineer's instruction.	No.	1		
11.2	Dismantling, Reinstalling and connecting the existing MV Isolating Switch with all accessories within the borders of the project according to the engineer's instructions.	No.	1		
11.3	Dismantling and Reinstalling the existing M.V Channel Steel Pole with all accessories within the borders of the project according to the engineer's instructions	No.	1		
11.4	Dismantling the existing MV Channel Steel Pole with all arms and accessories and Returning to the GEDCo's Warehouse	No.	1		
11.5	Dismantling the existing M.V Concrete Pole with all arms and accessories and Returning to the GEDCo's Warehouse.	No.	1		
11.6	Dismantling and Reinstalling L.V Wooden Pole with all accessories according to the engineer's instructions	No.	1		
11.7	Dismantling LV C.S.P Pole with concrete and Returning to the GEDCo's Warehouse.	No.	1		
11.8	Dismantling and Reinstalling MV Steel arms with all accessories according to the engineer's instructions	No.	1		
11.9	Dismantling the existing MV arms and Returning to the GEDCo's Warehouse.	No.	2		
<b>Total of Installation , Connection and Testing works (Part 1)</b>					

## Bill of Quantity : Package 2 Lot1- Installation , Connection and Concrete Works in Beit Hanoun Governorate

Item	Description	Unit	Qty.	Unit Rate (US\$)	Amount (US\$)
<b>Part 2 : Civil Works</b>					
	<p>All installation works must be according to GEDCO technical specifications, drawings, and engineer's instruction. Price shall include the following:</p> <p>1- All equipment's, machines, ... etc. needed for proper execution and completion of work activities.</p> <p>2- Excavation, Backfilling, and casting concrete B250 for steel poles bases along with relevant tests of concrete compressive strength cubes.</p> <p>3- Wooden shutter to all concrete bases of the steel poles in all soil types.</p> <p>4- Encasing all water, sewage water pipes or any other facilities 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>5- Dismantling, and reinstating the existing paving layers (Interlock, cement tiles, asphalt, ...etc.) as well as the soil layers at the places of wooden or steel poles. The price also includes replacing the damages interlocks, tiles, asphalt, ... etc to with new materials to match the existing one as per supervisor instruction.</p> <p>6-Excavation and backfilling with approved material for trenches.</p> <p>7-Leveling, adjusting and tiling the top surface of the foundations for the removed steel or wooden poles to match the existing status.</p> <p>8- Preparation of proper access to the work site as may deem necessary.</p> <p>9- Repairing of all damages may occur to the existing facilities during the implementation according to the technical specification and the engineer's instructions.</p> <p>10- Preparation of proper access to the work site as may deem necessary.</p> <p>11- Dismantle and removal of any damaged poles , wires, surplus materials, etc. then transport to locations nominated by engineer.</p> <p>12- All necessary tests according to the technical specification and the engineer's instructions.</p> <p>13- Transfer all surplus materials to the agreed dump sites according to supervisor instruction.</p> <p>14- All necessary shop drawings and as built drawings to the engineer's approval.</p>				
12.1	<p>Excavation and back filling for trenches with dimension not less than 60 cm in width and 120 cm depth and including all earthwork in all the different types of soil and rock excavation. The price <b>includes dismantling of existing interlock and/or chipping tiles</b> to any required width, excavation, bedding material under surrounding, and above the Electrical cables with clean dune sand, backfilling by supplying proper and approved material or with suitable approved selected excavated materials, the backfilling should be on layers not exceed than 25cm with compaction and watering 98% MDD, removing surplus excavation material outside the site to places as instructed by the Engineer. Price include the reinstatement for the pavement with the same type and layers supplying base-course layer in the same existing with thickness not less than 20 cm thickness with watering and compaction 100 MDD.</p> <p>Price includes Shore up the sides of excavation and take all precautions to keep the adjacent structure and existing infrastructure utilities (sewage, water, electricity, telecommunication and pavement works) safe. In addition to repair any damage occurs at site.</p>	L.M	1300		
12.2	Ditto, <b>But The price includes the cut and removal of existing asphalt</b>	L.M	250		
12.3	Ditto, <b>But The price includes removal of the concrete slab pavement</b>	L.M	50		
12.4	<p>Excavation and back filling for trenches with dimension not less than 60 cm in width and 120 cm depth and including all earthwork in all the different types of soil and rock excavation. The price includes the excavation, bedding material under, surrounding, and above the Electrical cables with clean dune sand, backfilling by supplying proper and approved material or with suitable approved selected excavated materials, the backfilling should be on layers not exceed than 25cm with compaction and watering 98% MDD, removing surplus excavation material outside the site to places as instructed by the Engineer.</p> <p>Price includes Shore up the sides of excavation and take all precautions to keep the adjacent structure and existing infrastructure utilities (sewage, water, electricity, telecommunication and pavement works) safe. In addition to repair any damage occurs at site.</p>	L.M	900		
12.5	<p>Supply &amp; lay (No. 1 ) UPVC pipe (SN8- 6") at cross road trenches.</p> <p>Without concrete as per drawing and supervisor instruction &amp; laying cordage inside the pipes.The pipes should have Rubber strap to protect the cable against drainage.</p>	L.M	180		
12.6	Ditto, but 8".	L.M	40		

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12.7	Supply & lay (No. 2 ) UPVC pipe (SN8- 6") at cross road trenches. The work include casting concrete B250 around the pipe as per drawing and supervisor instruction, laying cordage inside the pipes.The Pipes should have Rubber strap to protect the cable against drainage.	L.M	60		
12.8	Ditto, but 8".	L.M	250		
12.9	Laying the cables "No.3" along the trenches and hold it above the electrical poles as per drawings & supervisor instruction.The price includes supply and Install cable ties and wooden spacers if needed, supply Plastic Clamps ....etc, and all necessary accessories needed to complete the works and install the cables on the Poles or in the electrical rooms. Price also includes transfer the cables from GEDCO warehouse according to daily use.	L.M	3000		
12.10	Supply & Lay 45x45x5cm fair face concrete tiles B250 of compressive strength 200Kg/cm2 along the trenches including Supply and install the warning tape after Backfill of 15cm thick clean Sand on the Concrete tiles as per drawings & supervisor instructions.	L.M	2500		
12.11	Remove carefully the existing M.V cables "No.3" with taking into consideration the preservation of cables as much as possible and return the cables on provided drums from GEDCo to the GEDCo warehouse.	L.M	700		
<b>Total of Civil Works (Part 2)</b>					

**Summary**

Item	Description	Amount (US\$)
Part 1	Total of Installation , Connection and Testing works (Part 1)	
Part 2	Total of Civil Works (Part 2)	
	<b>Total of Works ( Part 1+Part 2)</b>	
	Discount Rate ( %)	
	Discount Amount	
	<b>Net Total</b>	