BILL NO. 16					
ELECTRICAL					
ITEM	**DESCRIPTION**	**QTY**	**UNIT**	**UP USD**	**TOTAL USD**
	The Contractor is to refer to the drawings and the site conditions for all details related to this division of the works and he is to include for complying with all the requirements contained therein, whether or not specifically mentioned within the items and inclusive of all design, instalment, testing, operation, commissioning and insurance of all equipment and relevant items.				
	- The Contractor shall provide all needed warranties in conjunction with the suppliers and bare full responsibility for the good operation and handling of the systems.				
	- The Contractor should execute a site survey prior to submit his Bid. Particular Site conditions should be included in his offer and no variations shall be applied once the Bid is granted.				
A	**SOLAR HYBRID (PV-BATTERY) SYSTEM**				
	Supply and Install of Hybrid PV systems as per schedule including all needed supports, steel structure, fixations, protections, wiring and conduits. The system has to be installed for a perfect operation and to the satisfaction of the Engineer.				
	- Manufacturer must be one of the worldwide renowned solar manufacturers. Official manufacturer PV system certifications must be achieved for: IEC 61215, IEC 61730, IEC 61701, UL 1703, IEC 62716 & IEC 60068.				
	- Contractor shall provide all coordination and warranties needed for the installation of the Hybrid System including 3 years warranty on batteries and 5 years on the remaining full system.				
	- Contractor shall provide training for KG Staff upon testing and comissioning and a preventive maintenance for 1 year.				
	PV System to include the following components, without being limited to, and such for the perfect operation of the system:				
	Monocrystalline Solar panels - 540Wp with high efficiency >21%.				
	MC4 Connectors.				
	PV Cables to be: 1Cx4mm2 Annealed Tinned Flexible copper conductor solar DC cable (UV Protected, XLPO Insulated.				
	PV structure of anodized aluminium with stainless steel accessories and concrete curbs for flat roofs.				
	PV structure of anodized aluminium with stainless steel accessories with reinforcement for high installed structures and pitched roofs.				
	Single Phase Hybrid Inverter or Off-Grid Inverter.				
	Battery Bank with minimum 1200 cycles and DOD 80%, C10 with higher efficiency >90%. (Floor Mounted)				
	Electrical cabinet for Hybrid or Off-Grid Inverter system connection to existing network to include: Surge Protection Devices: DC and AC SPDs, Disconnect switches, AC Circuit breakers and meters, DC and AC cables and all needed protections and accessories.				
	EARTHING NETWORK				
	Supply, install and connect earthing systems including earth rods, earth stranded bare copper conductor, earthing inspection boxes and bus bars, earth pits, connectors, clamps, test links, earth bar, excavation and natural ground backfilling as mentioned on drawings. The earthing system has to be installed for a perfect operation and to the satisfaction of the Engineer.				
	The Contractor shall check the site conditions for the proper installation of earthing rods and connections.				
	- Earth pit with 16mm2 rod, 1.5meter long.				

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	- 16mm2 G/Y PVC insulated earth cables connecting PV arrays, panels and all metal structures to earth.				
	- 35mm2 stranded bare copper conductor buried in natural soil, if needed for additional earthing.				
	- Earth bar (earthing to be tested less than 5 ohm).				
	To Collection				**$ -**

BILL NO. 16					
ELECTRICAL					
ITEM	**DESCRIPTION**	**QTY**	**UNIT**	**UP USD**	**TOTAL USD**
A.1	**NAHR EL BARED CAMP**				
1.1	*روضة غسان كنفاني(غسان كنفاني)*	1	U		
	OPTION 3 - 8KW				
1.2	*روضة النجدة (لنجدة)*	1	U		
	OPTION 2 - 5KW				
1.3	*روضة الصمود (الصمود)*	1	U		
	OPTION 3 - 8KW, Net Protection for PV to be provided				
1.4	*روضة الأقصى (جمعية الغوث الانساني)*	1	U		
	OPTION 2 - 5KW				
		1	U		
A.2	**BADDAOUI CAMP**				
2.1	*روضة غسان كنفاني(غسان كنفاني)*	1	U		
	OPTION 2 - 5KW				
2.2	*روضة النجدة الاجتماعية (جمعية النجدة الاجتماعية)*	1	U		
	Systems already installed, Net Protection for PV to be provided				
2.3	*روضة اطفال فلسطين (اتحاد المراة)*	1	U		
	OPTION 2A - 5KW				
2.4	*روضة أطفال الخالصة (جمعية العزة التربوية)*	1	U		
	OPTION 2 - 5KW, Net Protection for PV to be provided				
	To Collection				**$ -**
B	**GENERAL LIGHTING INSTALLATION**				
	Dismantle Existing Lamps, Supply and install LED lamps including lighting fixtures, where applicable, complete with drivers, internal wiring, and all necessary accessories as requested.				
B.1	**NAHR EL BARED CAMP**				
1.1	*روضة غسان كنفاني(غسان كنفاني)*				
1	Fluorescent Lamps to be replaced by LED 9W - 60cm with driver. LED quantities are considered equivalent to 4 LED tubes within 1 lighting fixture	24	U		
2	Fluorescent Lamps to be replaced by LED 18W - 120cm with driver. LED quantities are considered equivalent to 2 LED tubes within 1 lighting fixture	146	U		
	To Collection				**$ -**