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 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								
	BBC CAMP							
	الهدى (اتحاد المرأة)	1	U					
	OPTION 2 - 5KW							
1.2	ابناء القسام	1	U					
	OPTION 2A - 5KW							
1.3	نورس (البرامج النسانية)	1	U					
	OPTION 2A - 5KW							
1.4	غمان كنفاتي	1	U					
	OTPION 1A - 3.5KW							
1.5	بيت اطفال الصمود	1	U					
	OPTION 2A - 5KW							
1.6	اسعاد الطفولة (الاخوة)	1	U					
	OPTION 3 - 8KW, Net Protection for PV to be provided							
A.2	MAR ELIAS CAMP							
2.1	روضة مار البياس (مؤسسة غسان كنفاتي)	1	U					
	OPTION 2A - 5KW							
A.3	CHATILA CAMP							
3.1	روضة الصمود (بيت اطفال الصمود)	1	U					
	OPTION 2 - 5KW, High Structure above water tanks							
3.2	روضة علما (مركز الاطفال والفتوة)	1	U					
	OPTION 2 - 5KW, High Structure above water tanks							
3.3	روضة احلام لاجيء (احلام لاجيء)	1	U					
	OPTION 3 - 8KW							
A.4	SABRA CAMP							
	روضة السلام صبرا (اتحاد المراة)	1	U					
	OPTION 2 - 5KW							
4.2	روضة بيت شمس (Just Childhood)	1	U					
	Contractor to double check the existing system to reach its full performance							
	To Collection				\$ -			