



**Bill of Quantities**

Item	Description	Unit	Estimated Quantity	Unit Rate \$	Amount \$
	<b><u>Civil and Miscellaneous Works</u></b>				
	<b><u>Metallic Support for PV installation</u></b>				
	<u>Metallic structure for PV panels mounting with concrete curbstones</u>				
	Supply, install, test and commission, galvanized steel support structure for PV arrays able to withstand wind speed up to 140 km/h, with anti-rust treatment and epoxy painting at welding areas. Installation shall be complete with all required accessories, clamps and fittings, according to the specifications, the drawings, to the approval of the supervision entity at Sheild Association.				
	Galvanized steel support structure for 40 PV panels having an estimated total area of 110 m <sup>2</sup> , including beams, columns, manpower and welding.	LS	1		
	<i>Unit Rate in Words:</i> ..... ..... .....				
	<b><u>Inverter Room Rehabilitation</u></b>				
	Supply, deliver and install hollow metallic steel door with louver provided with anti-corrosion painting complete with frame, hinges, lock & keys. Supply, deliver and install a ventilation fan including all required accessories.	LS	1		
	<i>Unit Rate in Words:</i> ..... ..... .....				

<p>Rehabilitate the proposed inverter room. Interior walls paint: Water based paint (waterproof) with high covering power and wash ability (1 coat sealer primer, 2 coats putty, touch-up, rubbing, cleaning, minimum 2 finishing coats, roller applied). Colored sample to be approved. Supply and install PVC false ceiling. Reflective Waterproof paint protection PU to top of ceiling slab (1 primer and 2 layers coats) with preparation of the concrete surface where needed.</p> <p><i>Unit Rate in Words:</i></p> <p>.....</p> <p>.....</p>	LS	1		
<b>Electrical Works</b>				
<b><u>Electrical Panelboards</u></b>				
<p><u>Power and Control Panelboards</u></p> <p>Supply, transport, install, test and commission of electrical panel boards, to be sealed, vandal-proof, weatherproof IP54, entirely made of thick steel sheets, having a hinged front door with a minimum of 2 locks, complete including galvanized steel mounting chassis 400mm minimum height, accessories, galvanized steel plate for cable protection, cable glands, louvers with screens, ventilation fans, HDPE sleeves for cable's entry, internal cables, circuit breakers, selector switch, voltage protections, overload protections, surge arresters, witness lamps, earthing bar with connection to the earthing system, and all other related works.</p> <p>Item shall be complete including protections, manpower, accessories, fittings and all other related works, all as specified, shown on drawings and to the satisfaction of the supervision entity at Sheild Association.</p>				
<p>24 KW Three Phase Hybrid Inverter/s of a renowned brand</p> <p><i>Unit Rate in Words:</i></p> <p>.....</p> <p>.....</p>	No	1		
<p>40 KWH Lithium Battery bank, composed of renowned BMS and cells (6000 cycle). BMS to be compatible with the proposed inverters.</p> <p><i>Unit Rate in Words:</i></p> <p>.....</p> <p>.....</p>	No	1		

	<p>4 poles MTS with enclosure rated 4x150A, with all of the required cables, accessories, mounting fittings and weatherproof IP54, rust proof and vandal proof, MTS Panel.</p> <p><i>Unit Rate in Words:</i></p> <p>.....</p> <p>.....</p>	No	1		
<b><u>Power and Control Protection</u></b>					
	<p>Supply, transport, install, test and commission Power, Control, Protection Devices and Cables. Item shall be complete including, circuit breakers, contactors, surge protection devices, relays for protection and control, wiring, manpower, accessories, fittings and all other related works, all as specified, and to the satisfaction of the supervision entity at Sheild Association.</p> <p><i>Unit Rate in Words:</i></p> <p>.....</p> <p>.....</p>	LS	1		
	<p>Supply and install wall mounted portable fire extinguishers .</p> <p><i>Unit Rate in Words:</i></p> <p>.....</p> <p>.....</p>	No	2		
<b><u>Photovoltaic (PV) Module</u></b>					
	<p>Supply, transport, install, test and commission a Solar Photovoltaic (PV) Module of the Mono-crystalline type, preferably not less than 650Wp, Half Cells, protected by anti-reflective coated tempered glass and having a conversion efficiency greater or equal to 21%. Lower rated PV modules may be used, but not less than 540 Wp, as long as the desired total KW is met. Contractor shall install the panels complete including protections, manpower, accessories, fittings and all other related works, all as specified, and to the satisfaction of the supervision entity at Sheild Association.</p>				
	<p>650Wp, Half Cells , 21% efficiency PV Module.</p> <p><i>Unit Rate in Words:</i></p> <p>.....</p> <p>.....</p>	No	40		

<b><u>Lightning protection system.</u></b>				
<p>Supply, transport, install, test and commission a lightning protection system, complete including all necessary ESE air terminal with height extensions, electrodes (minimum of 3 rods), inspection pits with precast concrete handhole, bare copper conductor of 50 mm<sup>2</sup>, earth bus bar with test link, excavation, backfilling, compaction, and all other related works to achieve an earth resistance of less than 3 ohms, to be proven by a certified earth resistance test, witnessed by the supervision entity at Sheild Association and officially reported by the Contractor to the Client.</p> <p>Item shall be complete including protections, manpower, accessories, fittings and all other related works, all as specified, and to the satisfaction of the supervision entity at Sheild Association.</p>				
Lightning protection system. <i>Unit Rate in Words:</i>	№	1		
<b><u>Earthing system.</u></b>				
<p>Supply, transport, install, test and commission an earthing system, complete including all necessary electrodes (minimum of 3 rods), inspection pits with precast concrete handhole, bare copper conductor of 50 mm<sup>2</sup>, earth bus bar with test link, excavation, backfilling, compaction, and all other related works to achieve an earth resistance of less than 5 ohms, to be proven by a certified earth resistance test, witnessed by the supervision entity at Sheild Association and officially reported by the Contractor to the Client.</p> <p>Item shall be complete including protections, manpower, accessories, fittings and all other related works, all as specified, and to the satisfaction of the supervision entity at Sheild Association.</p>				
Earthing system. <i>Unit Rate in Words:</i>	№	1		
<b><u>Power and Control Cables.</u></b>				

Supply, install, test and commission of DC and AC power cables with all necessary lugs, connectors, cable glands, accessories and fittings. Item shall be complete including accessories, fittings and all related civil works, all as specified, and to the satisfaction of the supervision entity at Sheild Association. (Underground cabling should be done according to good engineering practices (in a pipe with high thickness as that used in irrigation for example and burried at sufficeint depth not less than 60cm)

	<i>Unit Rate in Words:</i> ..... .....	LS	1		
<b>Total</b>					











