







جداول الكميات Bill of Quantities

BoQs of a Solar System Installation for Obstetric Health Center in October Hospital - Yafe'e - Lahj Governorate جدول الكميات والمواصفات لمشروع توريد وتركيب نظام طاقة شمسية لمركز الطوارئ في مستشفى يافع - لحج









Specifications & BOQ of the Project: Solar System Installation for Obstetric Health Center in October Hospital - Yafe'e - Lahg Gov.

مشروع توريد وتركيب نظام طاقة شمسية لمركز الطوارئ في مستشفي يافع - لحج

	BOQ				
Item	Item Detials	Unit	Qty.	Unit Price	Total Price
No.	ELECTRICAL WORKS	Office	Qty.	[USD]	[USD]
1	Solar PV Module:				
	Supply, install, test, and commissioning of solar panels not less than 650W should be comprising of either mono-crystalline or polycrystalline; - The module type must conform with CE and IEC 61215, IEC 61730, IEC 61701 or equivalent standards; - Module conversion efficiency should be equal to or greater than 20.5 % under STC; - The PV manufacturer should be approved as tier-1; - The PV module shall perform satisfactorily in temperature between – 40 oC to +85 oC; - The rated output power of any supplied module shall have tolerance of 0-5 W; - The module shall be provided with a junction box with IP67; - The supplied module DC voltage should be not less than 1000 VDC; - The product warranty should be at least 10 years.	Pcs	48		
	Solar Hybrid inverter	l			
2.0	Supply, install, test, and commissioning of a Hybrid solar power inverter according to the following specifications: - Inverter type: Single phase. and Max 16 pcs parallel (It can be connected as Three phase parallel Inverter) - Net power: 12 KW. - Output voltage: 230/220 VAC per phase - Frequency: 50 Hz. - Battery voltage: 48 VDC. - Compatible for use with lithium batteries. - Integrated with MMPT trackers not less than two for each mppt tracker at least three inputs with maximum short circuit current (Isc) not less than 30A. - Maximum charging capacity not less than 200 A. - Voltage range 150-425 VDC, and Voc not less than 500VDC, - Hybrid inverter with charger that supports external power supply from the best types in the market. - The contractor must provide a catalog before supply in accordance with the specifications, . - The price includes everything necessary, including all connections and accessories required in accordance with the specifications, technical drawings, device protection system for overcurrent, overload, overvoltage, overheating, battery polarity reversal, photovoltaic reverse connection, current leakage protection, network monitoring, and PV string monitoring attached with 16GB memory, two years warranty and everything necessary to complete the item in accordance with the site engineer instructions.			Notes	
2.1	Hybrid inverter: 12Kw	Pcs	3		<u> </u>
	Solar Battery with Racks	1 (3		<u> </u>	<u> </u>
4.0	Supply, install, test, and commissioning of Battery bank voltage shall be 48 volts with built in battery rack as per technical specifications and drawings. -Batteries shall be Lithium-ion type LiFePO4 wirh integrated BMSBattery cyclic life shall be at least 6000 cycles at 80% depth of discharge (DOD) @ 0.5C @ 25° C° -Built-in intelligent BMS and RS, CAN,, and other necessary kits and protocols to communicate with the inverter, monitor the battery remotely & real time, and protect the battery pack at any time to prolong its service life -Reliable performance at high operating temperatures of up to 50° C; -One brand of battery shall be used for the entire installation; -The battery must allow connection with the inverters and MPPTs, offered by the supplier. In addition, the batteries must allow the parallel connection multiple racks -Battery to be certified CE or UL and to meet at least one for the following or equivalent standards IEC 62619, UL 1973 UL 9540 and UN38.3Battery Rack with built in busbars should be configured for 48 VDC, powder coated with a corrosion acid proof powder, the battery rack busbars shall be coveredWires connected to batteries shall utilize appropriately sized and rated lugs or terminals and proper hardware; -This item includes any addittional communication kits or devices for the successful and safe operation of the battery bank with the inverters and MPPTs including but not limited; power cables, ground cables, communication cablesetc" according to manufacturer recommendations - Product warranty shall be 5 years;		Note		
4.1	- Product warranty shall be 5 years; Battery Capacity :100AH	Pcs	16		
	DC Combiner Box (DCCB)				
	Supply, install, test, and commissioning of DC Combiner Box 8 input, 8 output DC Combiner Box; - The DCCB to be provided for termination of connecting cables. The DCJB shall be made of metal or UV resistant material and suitable for outdoor installation,IP65, - All wires/cables must be terminated through cable lugs; - DC output circuit: In accordance with the maximum current X 1.25, 1000 VDC breaker; - DC fuse rating for each string:1000V, 20 A; - Built in surge protection device; - Product warranty shall be 2 years.	Pcs	1		
	DC Cabling				
6.0	Supply, install, test, and commissioning of DC Cabling 1KV, Flexible stranded copper per EN 60228 , TUV certified. Insulation: Halogen-free, thermoset polyolefin. Jacket: low smoke non-halogenated, flame retardant, oil, abrasion, chemical and sunlight resistant meeting UL 44, UL 854. - All cables shall be marked properly according to approved design so that cable can be easily traced and identified; PV array to battery circuit(s) to be sized for maximum 3% voltage drop at rated array power (Imp); Cable ends connections are to be made through suitable lugs or terminals, crimped properly & with use of cable glands; this item is including the cables and cable trays Cable Tray: - 1mm thickness , Perforated type Galvanized steel cable trays, cable tray covers, clamping bolts and other cable tray accessories such as coupler plates, bends, tees, reducers, vertical elbows in manufactured accordance with ASTM A653 SS, Grade 33, coating designation G90. (1C*6 sqr.mm) (Red& Black)	M	540	Note	
	(1C*25 sqr.mm) (Red& Black)	M	16		
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6.3	(1C*50 sqr.mm) (Red& Black) (1C*70 sqr.mm) (Red& Black)	M M	80 50		

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The size of conductor shall be according to table \$4.7 of IEE - BS 7671 – IEC 60365-5-54.						
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Supply, install, test and commissioning ventilation system for balancing airflow to ensure a negative pressure relationship include: civil work to demolish two separate locations in room walls (Two fans "One fans in each group") as per drawing, sequence of operation is to operate one fans per time (one group) with timer for each group, including all accessories and installation requirements (exhaust Fan, ducts, electrical wiring requirements, air inlet and outlet windows with louvers, PVC Pipe,etc.) -Centrifugal fan with aluminum radial plats - copper motorSingle phase 220v, 50Hz, -Fans CFM is to be not less than 800			<u> </u>	<u> </u>	<u> </u>	
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17 Alarm System						
17 Alarm System		-Single phase 220v, 50Hz,				
		-Single phase 220v, 50Hz,				

مشروع توريد وتركيب نظام طاقة شمسية لمركز الطوارئ في مستشفي يافع - لحج

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Leaves to the control of the control	INO.		Unit	Qty.		Total Price [USD]
22 Supply - result into a set commissioning by Carthon Educacy Commissioning of the Commi	17.1	Supply, install and testing stand-alone Smoke and heat detector, including button for false alert, battery for three years long life, warning sound delivers sounds of >85 dB, wires, PVC wires trucking, and other all required accessories to complete the item according	Pcs	2		
March Section Part Par	17.2		Pcs	1		
chapts, incall, rest and commissioning or and habiterist 498 for 589 M Outstand righting throse incurs the Proceeding to received approximation and commission and commissi			Pcs	1		
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13.3 34-34 sq. mm) wire run inside the trunking including wuptly all filining materials, accessories and intercurrenctions complete as required and approved by the constitute of the project sign boards 19. Project sign boards Sopply, includation, and maintenance of project signboard (£.6m x 1.4m and 1.2m from ground) as per drawing, material similar to year of the project of the project signboard (£.6m x 1.4m and 1.2m from ground) as per drawing. Sopply, includation, and maintenance of project signboard (£.6m x 1.4m and 1.2m from ground) as per drawing. Sopply, includation, and maintenance of project signboard (£.6m x 1.4m and 1.2m from ground) as per drawing. Post 1 20. Septem Training 21. Supplying our training as per required. CIVI WORKS 21. Rooftop Mounting Structures 12. Rooftop Mounting Structures 12. Rooftop Mounting Structures 13. All works shall be done accreding to the frightery in Structure, Provinging and testing as required and according to technical specifications and a voice of the structure of the project of th	18.2	Supply, install, test and commissioning of 1 RT Spilt Air Condition inverter type include alternate operation and temperature control unit with al wiring requirements - Adjustable fan speed; - Capacity: - Capacity: 12,000 BTU (1 Ton). - Voltage: 220-240; - Frequency: 50 Hz; - Single phase; - Noise level shall not exceed 45 dB; - Star rating 3 star or above;	Pcs	1		
specified large ging support. The Glowing information will be written in Arabic and English Languages as shown in attached drawings, and any other information instructed by the Employer/Engineer. **System Training** **System Training** **Rooftop Mounting Structure: **** **CIVIL WORKS** **To General Requirements: **Note** **Not		(3x4 sq.mm) wire run inside the trunking including supply of all fixing materials, accessories and interconnections complete as required and approved by the consultant	Pcs	20		
System Training 20.1 Carrying our training as per required. SUB TOTAL RECTRICAL Contractor has to submit Detailed Shop Drawings to be approved by the Engineer before the commencement of the work, and all required materials should be supplied as specified and subject to the Engineer approval. - All works shall be done according to the Ingineer's Instructions, Drawings, and attached specification The Contractor should include in his price the cost's family many details and subject to the Engineer approval All works shall be done according to the Ingineer's Instructions, Drawings, and attached specification The Contractor should include in his price the cost's family many details go a required and according to technical specifications and a work requirement Recommand and leveling network shall be approved prior to starting next works The locations of the building's columny/Reams shall be stakeout by the professional way (such as a total station) as per drawings This work prepared to cover So along panels (28 dams in \$1300mm) approximately Measurement will apply to the outline of steehwork for top framing plan (level of solar panels), the payable area includes the projected parts of the Purp Annels Supply and install steel structure mountain as per drawings, specification and as per the following details: Supplying, fabricating, delivers at site, holisting and finding in position, including all temporary staging and supporting work and making all Structural Steel work in a condition of the common staging and supporting work and making all Structural Steel work in a condition of the common staging and supporting work and making all Structural Steel work in a condition of the steel in the stage of		Supply, installation, and maintenance of project signboard (1.6m x 1.4m and 1.2m from ground) as per drawing, material similar to specified large sign support. The following information will be written in Arabic and English Languages as shown in attached drawings,	Pcs	1		
Rooftop Mounting Structure: 2.10 General Requirements: The Contractor has to submit Detailed Shop Drawings to be approved by the Engineer before the commencement of the work, and all required materials should be supplied as specified and subject to the Engineer before the commencement of the work, and all required materials should be supplied as specified and subject to the Engineer Supprovit. - All works shall be done according to the Ingineer's instructions, Drawings, and attached specification The Contractor should include in this price the costs of sampling and testing as required and according to technical specifications and a work requirement Renormant and leveling network shall be approved prior to starting next works This work prepared to cover Salor panels (Saloman ta 1935mm) approximately This work prepared to cover Salor panels (Saloman ta 1935mm) approximately This work prepared to cover Salor panels (Saloman ta 1935mm) approximately This work prepared to cover Salor panels (Saloman ta 1935mm) approximately This work prepared to cover Salor panels (Saloman ta 1935mm) approximately This work prepared to cover Salor panels (Saloman ta 1935mm) approximately This work prepared to cover done with the design many participation and as per drawings Supplying Instincting, deliverin at site, hobiting and fiking in position, including all temporary staging and supporting work and making all structural steel work in accordance with the design, drawing prepared by the consultant for columns, beams, purilins, bracing, brackets, etc. with connections using plates, channels and angles, gusset plate, anchor bot, cleats, fasteners etc., galvanized steel fining galvanized steel (mining galva	20					
Rooftop Mounting Structure: 2.0 General Requirements: The Contractor has to submit Detailed Shop Drawings to be approved by the Engineer before the commencement of the work, and all required materials should be supplied as specified and subject to the Engineer approval. - All works shall be done according to the Engineer's shorturents, Drivings, and attached specification. - He Contractor should include in his price the costs of sampling and testing as required and according to technical specifications and a work requirement. - Benchmark and leveling network shall be approved prior to starting next works. - The locations of the building's columns/likeams shall be stakeout by the professional way (such as a total station) as per drawings. - This work prepared to cover 8 solar panels (1284mm x 1303mm) approximately. - Measurement will apply to the outline of steelwork for top firaming plan (level of solar panels), the payable area includes the projected parts of the PV panels Supply and install steel structure mountain as per drawings, specification and as per the following details: - Supplying, tatricating, deliverin at site, hostisting and fixing in position, including all temporary staging and supporting work and making all structural steel work in accordance with the design, drawing prepared by the consultant for columns, beams, purifus, livrasing, brackets, etc. with connections using plates, channels and angies, gauser plate, ancher bot, cleast, fastierner etc., glovarized steel (min galvanized of 2000mp). The rate of steel work shall include assembly, plotting, cost of fasteners (ruts, botts and washers) etc. The rate shall also include necessary botts & washers for fining including grouting of botts for fixed members on the R. Galba with 1.3 rion shringen to 2000mp. The rate of steel work shall include assembly, plotting, cost of fasteners (ruts, botts and washers) etc. The rate of steel work shall include assembly, plotting, cost of fasteners (ruts, botts) and include received in the process of		Carrying our training as per required.	LS	1		
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