

A. TECHNICAL SPECIFICATIONS

Supply and install solar power batteries for two buildings in Ramadi				
Item No	Name of Product	Specifications	Quantity	Reference Picture (does not have to be equivalent)
Lot A - Supply and install solar power batteries (100 kW solar power system)				
1	solar batteries	Supply materials and install Lithium-ion batteries, LiFePO4, 6000 cycles, 17.92 kWh, 48 V, nominal capacity 350 Ah, DoD not less than 80%. Each battery pack should contain an LED display, input and output connectors. Battery should be equipped with Charging Overvoltage Protection, Discharge Undervoltage Protection, Discharge Overcurrent Protection, Charging Overcurrent Protection, Short Circuit Protection, and Temperature Protection. Price includes supplying materials and connecting the batteries to the existing solar system using Photovoltaic Power cables (4 mm ² , max. DC Voltage 1.8 kV, Halogen free, Flame Retardant, Low Smoke Emission), 500 mm busbars in sufficient lengths according to the instructions of the supervising engineer, cable trays according to the lengths and sizes specified by the supervising engineer, and all other requirements according to the instructions of the supervisor engineer.	20	
2	Electrical board DC	Supply materials and install 60*80 cm board for DC contains 20 DC circuit breakers 25 A, 10 AC circuit breakers 32 A, and 20 SPD's (Surge Protection Devices). The board should collect all the cables from the solar panels. All the SPD's should be connected to the earth system through a suitable size busbar.	1	
3	Electrical board AC	Supply materials and install 60*80 cm board for AC contains 250 A main circuit breaker, 4 Poles, 3 Phase. The main circuit breaker should be connected to 4 suitable size busbars according to the instructions of the supervising engineer. The board should also contain 10 AC circuit breakers 32 A. The board should collect all the cables from the inverters.	1	

ANNEX 1: TECHNICAL SPECIFICATION

Project Number: 19.1859.8-002



4	Monitoring screen	Supply materials and install 24 inches display with wifi connectivity to show the current status and power details. The display should be connected to the solar system and located a suitable location according to the instructions of the supervising engineer.	1	
Lot B - Supply and install solar power batteries (50 kW solar power system)				
1	solar batteries	Supply materials and install Lithium ion batteries, LiFePO4, 6000 cycles, 17.92 kWh, 48 V, nominal capacity 350 Ah, DoD not less than 80%. Each battery pack should contain an LED display, and input and output connectors. The battery should be equipped with Charging Overvoltage Protection, Discharge Undervoltage Protection, Discharge Overcurrent Protection, Charging Overcurrent Protection, Short Circuit Protection, and Temperature Protection. Price includes supplying materials and connecting the batteries to the existing solar system using Photovoltaic Power cables (4 mm ² , max. DC Voltage 1.8 kV, Halogen free, Flame Retardant, Low Smoke Emission), 500 mm busbars in sufficient lengths according to the instructions of the supervising engineer, cable trays according to the lengths and sizes specified by the supervising engineer, and all other requirements according to the instructions of the supervisor engineer.	10	
2	Electrical board DC	Supply materials and install 50*70 cm board for DC contains 10 DC circuit breakers 25 A, 5 AC circuit breakers 32 A, and 10 SPD's (Surge Protection Devices). The board should collect all the cables from the solar panels. All the SPD's should be connected to the earth system through a suitable size busbar.	1	
3	Electrical board AC	Supply materials and install 50*70 cm board for AC contains 160 A main circuit breaker, 4 Poles, 3 Phase. The main circuit breaker should be connected to 4 suitable size busbars according to the instructions of the supervising engineer. The board should also contain 5 AC circuit breakers 32 A. The board should collect all the cables from the inverters.	1	

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4	Monitoring screen	Supply materials and install 24 inches display with wifi connectivity to show the current status and power details. The display should be connected to the solar system and located a suitable location according to the instructions of the supervising engineer.	1	
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B. Delivery

- **Anbar/Ramadi- Directorate of Agriculture**

C. Remarks and Conditions

- The buildings already have existing solar power systems with hybrid invertors, providing, installing, and connecting the abovementioned items is an upgrade to the systems
- During awarding process GIZ will request the potential companies to visit the site as a mandate to make sure the offeror is aware of the site conditions.
- All standard accessories for all offered items should be provided.

D. GENERAL REMARKS AND SPECIAL CONDITION

- Supplier must specify delivery time in bid form.
- Catalogues/pictures with details and specifications must be provided with the tender submission by bidder for the needed items and GIZ will physically check and approve.
- All physical characteristics in the technical specification description are approximate, not exact with minimum requirements.
- Supplying, loading, unloading, Installation, and transportation are included.
- The supplier shall provide min. 2-year warranty.
- A Technician must be delegated from supplier to assemble and recheck after maintenance time.
- Reference pictures are only to recognize and understand the items, not an indication for any model or brand.
- The supplier might be requested physical checking of the items.