



# Request for Proposal – 500 KW PV Solar Project

5/B2, Phase 5, Hayatabad, Peshawar

Bids are required to install PV Solar Project at rooftops of Rehman Medical Institute, Peshawar. Detailed specification of project/equipment and bidder's profiles is mentioned below.

Supplier's Profile of Solar Power Project at Rehman Medical Institute:

### **1. General**

Qualification will be based on all the criteria given in succeeding paras regarding the Bidder's Technical Expertise, Financial Soundness, Experience Record and Personnel Capabilities, etc. as demonstrated by the Bidder's responses. Sub-contractor's experience and resources shall not be considered in determining the Bidder's compliance with the qualifying criteria.

### **2. Relevant Experience & Certification**

- a) The firm must have experience of installing at least one project of 500 KW on-grid solar power plant. (Proof required)
- b) In case of local firm PEC Certification / Registration is required.
- c) Should have worked with Govt Sector Organisations.

### **3. Financial Position**

The bidder should be financially strong and the audited financial statement sheets for the past three years should demonstrate the soundness of the bidder's financial position.

## **System Specifications**

### **1. PV Capacity**

The minimum capacity as per available space is 500 KW. Site visit can be done if needed.

### **2. System Operating Design**

- a. Grid Tied & Net metering capable.
- b. 3-Phase
- c. Frequency: 50Hz  $\pm$  1%
- d. PV power termination in each building's distribution room/box.

### **3. PV Module Specifications**

- a. Module Type Mono Crystalline
- b. PV Module Sizes should be 540 watts / 545 Watts / 550 Watts or more according to the space.
- c. PV Manufacturer should be Tier-1 list of Bloomberg, USA. Longi / Jinko / Canadian / JA / Risen or equivalent is also acceptable.
- d. Module Efficiency 16.5% or above
- e. Withstand challenging environmental conditions of 2400 Pa wind load, 35 mm hail stones at 110 km/h
- f. Positive Power Tolerance of 0~+5W
- g. Min. 10 Year Product Warranty
- h. 25 Year Linear Power Warranty
- i. PV modules should have following certifications: IEC 61215/ IEC 61730/ UL 1703, ISO 9001:2008, ISO 14001: 2004, OHSAS 18001

### **4. Inverter Specifications**

- a. 3-Phase Inverters
- b. Built-in MPPT based charge controller.
- c. European/US Manufactured. Huawei / Growatt / Sungrow / Solis or equivalent are also acceptable.
- d. Inverter size: As per site / design
- e. Max. Inverter Efficiency: 98% or more
- f. Should comply with following certifications: IEC 62109-1/2, IEC 61727, VDE-AR-N 4105, VDE 0125-1-1, G 59/3,
- g. Built-in DC disconnects.
- h. Built-in Reverse Polarity Protection

- i. IP65 rated or more.
- j. Transformer-less Topology
- k. With Wi-Fi Dongle and Data Logger for Remote Monitoring & All Allied accessories
- l. Max. Permitted humidity: 100%
- m. Ambient Temperature range of: -25C to +60C
- n. Warranty: Min. 5 years Warranty
- o. Local Spares Availability

#### 5. Mounting Structure

- a. Hot Dip Galvanized steel (min. 70 microns)/Aluminium structure with Aluminium Clamps
- b. 12SWG H-Beam Structure Mount with Hot Dip Galvanized Iron Channels (14-16 SWG) with Complete Installation Including 1:2:4 PCC Civil Work for each Mounting Structure as per Configuration P1/P2. Should be bearable against wind velocity of 140kmph.
- c. Proper waterproofing to be done.

#### 6. Environment & Remote data Monitoring System

- a. Remote monitoring
- b. Complete computerized data monitoring system
- c. Data logging of all parameters like irradiance, current, voltage, power, faults, breakdowns, etc.
- d. Min. Data storage capacity for 10 years

#### 7. Plant Electrical Safeties

The system should at least be incorporated with the following electrical safeties.

- a. Over/Under Voltage
- b. Over/Under Current
- c. Surges/Spikes protection for grid supply
- d. Surges/Spikes protection for lightening

#### 8. Earthing & Protection System from lightening

- a. Provision of Complete Earthing and protection system including Design, installation & Commissioning.
- b. Provision of lightning arresters including Design, installation & Commissioning.
- c. P/F Lightning Arrestors/Rod with earthing and complete wiring as per requirement of 40 kW and AEDB

#### 9. Miscellaneous

All Solar related accessories including HDPE Conduits, Lugs, Glands different sizes, Cable ties, pvc tapes, steel and PVC clamps, Control Cabling Works, pvc pipes, rawal bolts, thimbles, connectors, warning labels, fabricated floor/wall mounting steel main board for weather protection of inverter and communication cables etc

SN	Item	Specifications	Unit	Qty
1	BOS	Main Distribution Box (AC) LT Panel - 14 SWG Sheet Steel - Free Standing Floor Type / Wal Mounted Coated w/ Antirust Red Paint & coated w/ two coats of Powder Paint. w/ I/p O/p and Phase Marked Glands incl. Busbar RYB N E 03 No O/U Voltage Protection & Phase Failure Includes other Necessary Equipment as per Instruction/SLD DC BREAKERS, AC BREAKERS, CHANGE OVERS ETC	No	1
2	BOS	Providing Fixing of water Proof Type DC Distribution box of MCB/FUSES for Each Strings	No	2
3	BOS	4P MCCB Circuit Breaker 200A AC O/P as per site requirement	No	5
4	Cables	DC Cables (6mm 1C Cu/PVC/PVC 1000V Branded, AGE, Pakistan, Fast cables or equivalent	Meter	500

5	Cables	AC Cable Between Inverter to Bus bar and LT Panel (95 Sq.mm PU / PVC /4C) (For 40 KW Inverters)	Meter	100
6	Cables	Earth Cable 6Sq.mm/1C/Cu/PVC/450-750V flexible	Meter	100
7	Cables	Earth Cable 10Sq.mm/1C/Cu/PVC/450-750V flexible	Meter	100
8	Ducting	UPVC pipe (25mm dia pipe or side Requirement Pipe size for laying string wires PV area to inverters including sockets)	Meter	150
9	Ducting	UPVC pipe (25mm including bends and sockets)	Meter	150
10	Misc	All Solar related accessories including HDPE Conduits, Lugs, Glands different sizes, Cable ties, pvc tapes, steel and PVC clamps, Control Cabling Works, pvc pipes, rawal bolts, thimbles, connectors, warning labels, fabricated floor/wall mounting steel main board for weather protection of inverter and communication cables etc	Watts	500,000
11	Svc	Net Metering Svc Fees; NEPRA Fees; Bidirectional Meter; Electrical inspector; Installation of Green Meter etc.	Watts	500,000
12	Svc	Installation and Commissioning (Complete project installation and commissioning till handover of the project to client)	Watts	500,000

## 10. Layouts:

Please click on the link below to download:

[https://rmiedu-my.sharepoint.com/:u:/g/personal/wasim\\_khan\\_rmi\\_edu\\_pk/Ee2N8\\_fL95hHkJJstbuWwdEB\\_OdWrn4iKZ8dESDTZloCOA?e=MddTI6](https://rmiedu-my.sharepoint.com/:u:/g/personal/wasim_khan_rmi_edu_pk/Ee2N8_fL95hHkJJstbuWwdEB_OdWrn4iKZ8dESDTZloCOA?e=MddTI6)

## 11. Scope of Supply

Complete solar power plant on turnkey basis including but not limited to the following:

- a. PV Solar Panels.
- b. Inverters.
- c. Junction Boxes
- d. All parts of computerized monitoring & recording system.
- e. Mounting fixtures for PV Panels including all types of installation material.
- f. All types of cables, connectors & control panels.
- g. All types of latest relevant software
- h. Installation & maintenance drawings
- i. Operation & maintenance manuals.
- j. Schematic drawing of electronic circuit switch component values.
- k. Provision of complete layout of placement of solar panels and their accessories.
- l. Design/drawing of Earthing and protection system.
- m. Complete Earthing system & lightning arresters, cables etc.
- n. Installations supervision / commissioning supervision
- o. Training of O&M Staff
- p. Complete O&M for 2 years
- q. Net Metering Svc Fees; NEPRA Fees; Bidirectional Meter; Electrical inspector, Installation of Green Meter etc.