

# **UNIVERSITY OF KOTLI AZAD JAMMU and KASHMIR**

Purchase Section

University of Kotli Azad Jammu and Kashmir

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## **Tender Document–**

### **Supply and Fixing of ON Grid Solar System of 30 KW with 10 KW Hybrid Model at University of Kotli**

**Last Date for obtaining Tender Document:** 17-04-2024 (09:00 am)

**Last Date and Time for Submitting Sealed Technical Bids:** 17-04-2024 at 10:00 am.

**Time and Place of opening Technical Bids:** 17-04-2024 at 11:30 am in Meeting Room of UoK.

**Office Timing in Ramadan:** 8:30 am to 2:00 pm otherwise 8:30 am to 4:30 pm

#### **Note:**

- (a) Rates should be quoted on this tender document only
- (b) The bidding document can be obtained (during office hours) from the office of Treasurer or Secretary Purchase Committee, after depositing tender fee of Rs. 5000/- (non-refundable) in shape of bank challan/ bank draft/pay order in favor of the Treasurer, University of Kotli, Azad Jammu & Kashmir. Tender Documents is also available on official website of the University of Kotli Azad Kashmir. In case of downloading, the submission of Quotation is subject to deposit of Rs. 2,000 as Tender Fee and it will be required at the time of Tender submission.

**PURCHASE SECTION**

**Tender Document**

**Supply and Fixing of ON Grid Solar System of 30 KW with 10 KW Hybrid Model at University of Kotli**

**FORM OF BID**

Name of Company/Firm/Supplier: \_\_\_\_\_

GST No: \_\_\_\_\_ (Please attach copy)

NTN No: \_\_\_\_\_ (Please attach copy)

Phone No: \_\_\_\_\_ Mobile No: \_\_\_\_\_

Fax No: \_\_\_\_\_ Email: \_\_\_\_\_

Tender Fee (Rs. 5000/-, nonrefundable) vide Draft/Challan No: \_\_\_\_\_ Dated: \_\_\_\_\_

Earnest Money / CDR No (Refundable): \_\_\_\_\_ Dated: \_\_\_\_\_ Rs. \_\_\_\_\_

Full Address of Company/Firm/Supplier: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Terms & Conditions

- a) Detailed Specifications are given in this tender document. Firms are required to submit their technical proposal after visit. Firms are required to contact Treasurer office prior to visit the site.
- b) The bidder should not be blacklisted by any Government/Semi-Government/Private Organization. An affidavit on stamp paper (valid legal document) to this effect will be required with technical bids.
- c) All required documents must be provided at the time of submission of Technical bid. Relevant manuals/details must be supplied along with items of technical nature (where necessary/applicable).
- d) Financial proposals should accompany Rs. 500000/- as 5% Bid Security/Earnest Money of estimated value of procurement in shape of CDR/Bank Draft/Pay Order in favor of Treasurer, UoK. The rates should be quoted in Pak Rupees, on F.O.R UoK and must be valid for 90 days. CDR of the firm will be confiscated if the firm fails to provide material on quoted/approved rates, once the tender is open. Moreover, if the supplier fails to complete the supply of ordered items as per terms & conditions laid down in supply order, CDR will also be forfeited. CDR of successful bidder(s) will be retained by the University during the tenancy of agreement.
- e) The rates should be quoted on F.O.R. University of Kotli basis.
- e) Price quoted must be in Pak rupees. Price quoted other than Pak Rupees shall not be considered.
- f) All prevailing taxes are to be paid by the firm and must be included in the rates as per government rules/rates.
- g) Tender must be supported with proof of sales tax and income tax registration certificate. The returns of last at least 3 years should be attached as evidence.
- i) Rates should be written clearly and should be free of errors and/or over-writing. Corrections, if any, should be made clearly and initiated with the signature of person signing the tender.
- j) Rates must be valid for 90 days.
- k) Supplier must be registered on Pakistan Engineering Council (PEC), Security Exchange Commission of Pakistan (SECP) and Alternat Energy Development Board/PPIB.
- l) The evaluation will be based on the specifications and prices. Purchase/Technical committee reserves the right to choose the specifications at its discretion, whatever it considers best for the university.
- m) Tender must be enclosed in a properly sealed "bigger envelope" and the name of the bidder clearly marked on the envelope.
- o) The bidders are required to visit the University prior to submission of technical bids. Proposal should be given in complete as per site requirement. Presentation of proposals in front of Purchase Committee is mandatory after opening of technical proposal.

p) The tenderer shall sign and stamp every page of the tender document including terms and conditions pages.

q) The supplier/contractor will be bound to abide by the rules & regulations/instructions /directions mentioned in the supply order.

r) Bids received after due date or not properly sealed will be rejected and returned unopened to the bidder. Incomplete and conditional tender will also be rejected.

s) In case the tender is not opened on the scheduled date due to any force de majeure then the same will be opened on the next working day at same time and place.

t) The Technical/Purchase Committee reserve the right to accept or reject any or all bids, as per PPRA rules, and increase/ decrease the quantity at any stage. The supply order/contract will be issued subject to the availability of funds. Moreover, the items may be deleted.

u) In event of any dispute, the legal matter shall be subjected to the jurisdiction of AJ&K.

v) Firm must submit certificate of PPIB(AEDB) registration with technical bid and also provide the registration with AJKED as vendor of net metering in case of success of financial bid with in given time by purchase committee.

**Payment Schedule:**

a) 90% payment will be made and 10% amount is withheld for two years till completion of warranty/Support period whichever is higher.

b) The payment will be made in Pak Rupees, through crossed cheque.

c) Deduction of taxes, as per government rules shall be made from the bill at the time of payment.

**CERTIFICATE:**

We undertake that our Firms M/S \_\_\_\_\_ is not blacklisted by any Government Department/Agency/Private Organization in any part of AJK/Pakistan and that we currently not in litigation with any other authority or organization in this capacity.

We hereby confirm to have read carefully complete descriptions of the items and all terms & conditions of this tender document. We agree to abide by all these terms, conditions, stipulations, obligations, and instructions.

In case of any dispute, decision of Central Purchase Committee of UoK would be final and we undertake to accept any or all decisions of the central purchase committee of this University with respect to acceptance and rejection of our bid, in part or in whole and that such a decision shall not be justifiable in any court of law at any time and at any stage. We further undertake that the Purchase Committee is not bound to accept the lowest bid necessarily.

We solemnly affirm and declare that contents of this undertaking are true to the best of my information, knowledge, and belief.

**Name of representative of the firm:** \_\_\_\_\_

**Designation:** \_\_\_\_\_

**CNIC No:** \_\_\_\_\_

**Signature and Seal:** \_\_\_\_\_

Sr #	Description of Work	QTY	Completion Time
1	Supply and fixing of ON grid Solar System of 30KW with 10KW hybrid model at University of Kotli	01 Job	As per work order

### Specifications

The following are the minimum technical specifications of the equipment being parts of the Solar PV System that shall be installed at the premises.

#### **1. Solar PV Modules:**

Manufacturer and Material Requirements:

Solar PV modules shall be of Tier-I manufacturer as per latest Bloomberg New Energy Finance (BNEF) list (Q1 of the year 2024). The PV technology shall be half-cut mono-PERC to maximize the yield against the available area and minimize the losses against partial shading. Each module shall have IP 65 rated Junction Boxes which shall be dust and vermin proof having copper bus bar terminals, EPDM rubber gasket, reverse blocking diodes and IEC standard 62790 compliant.

#### **Performance and Rating Requirements:**

The power rating for each PV module shall be more than 400Wp under STC conditions with positive power tolerance only. Each PV module must have efficiency greater than 20%. The proposed PV module must exhibit efficiency of more than 96% of the STC efficiency at 200 W/m<sup>2</sup> (i.e. low lighting conditions). The module Temperature Coefficient at P<sub>max</sub> shall be -0.37%/°C or less and the operating temperature range shall be -40°C to +85°C.

#### **Certification Requirements:**

The PV Module must be Type Tested based on IEC standard 61215 (Terrestrial PV Modules-Design qualification and type approval) and IEC 61730 (Photovoltaic module safety qualification) based insulation of Safety Class II. Modules must be free of Potential Induced Degradation (PID) and Light Induced Degradation (LID). The module shall be S.R.O 604 compliant issued by Government of Pakistan. The Flash Test report, module Test report as per IEC standards 61215 and 61730 along with pre-shipment inspection certificate shall be provided at the time of delivery of modules at site.

#### **Warranty and Replacement:**

Each module shall have minimum 12 years material and workmanship warranty and 25 years performance warranty. The Power output of each PV module shall be greater than 85% after 25 Years. The warranty shall be insured by a third party.

## **Product identification:**

Each PV module shall have a unique barcode identification tag issued by the manufacturer. The same shall be confirmed by the manufacturer prior to verification of equipment delivery at site by the Engineer.

## **2. Inverters:**

### **Performance and Rating Requirements:**

The inverter shall be three phase grids tied with minimum IP65 protection having CEC efficiency of not less than 98.5 % and output frequency of 50Hz. The cumulative capacity of inverter shall be according to the total solar PV capacity to be installed and inverter's minimum input voltage shall be as per array specific design. Under all scenarios, the DC to AC ratio of the inverter shall not be more than 1.1.

The inverters shall have multiple MPPT inputs for 3-phase inverters with a max efficiency of 99% multi MPP controller. The Total Harmonic Distortion shall be less than 3%. The ambient operating temperature range of Inverter shall be between -25°C to 60°C. Three phase inverter must have Diesel Generator Synchronization module for seamless integration with Generators.

### **Protection and Safety Requirements:**

The inverter shall have AC overcurrent protection, residual current monitoring, DC reverse polarity protection, DC insulation resistance detection, PV array string fault monitoring, anti-islanding protection and Type-2 or better DC and AC SPDs. The inverter must have anti PID module to limit the harmful effects of Potential Induced Degradation of PV Modules with MLT string & string intelligent monitoring and fuse protection leading IPM (Intelligent Power Module) more reliable internal DC switches & transform less type II surge arresters for both DC & AC Anti PID for PV module supporting AC power supply. Inverter shall have a built-in data logger; communication interface protections and remote monitoring capability. It shall be compliant with UL 1741, IEC logger, /2 for safety design.

### **Warranty Requirements:**

The inverters shall have minimum 10 years of replacement warranty.

## **3. PV Balance of system:**

### **a) Mounting Structure:**

The mounting structure shall be UV resistant and shall have a hot dip galvanized steel frame of Lauge 12 with 85 micron or thicker zinc coating and 100 microns for base plate. The space from the ground must be 9 ft. The structure shall have galvanic isolation and shall withstand wind speed of 150 km/h. Complete civil work (including civil blocks of 1:2:4 composition) for mounting structure installation shall be performed as per Employer Design at site, For rooftop areas with additional slabs, rawal bolt based anchoring shall be followed in combination with waterproofing treatment.

#### **b) DC Cables, AC Cables, Earthing wires, Conduits, Connectors, Cable Trays etc.**

Copper cables with purity of 99.9% or more with XLPO insulation and rated for 1500 V shall be used, Cables shall be low smoke Halogen free along with compliance with BS 6004, BS 7644 and UL 4703 standards. Minimum size for DC cables shall be 4 mm<sup>2</sup> or as per size of PV Module Output cable (whichever is higher or given in the Bills of Quantities). Under all conditions, for DC cables, voltage drop shall be less than 0.5% at STC and for AC cables voltage drop shall be less than 1% at STC. 6 mm earth wires for equipotential bonding shall be used. Separate DC and AC earthing each with 3 ohm or lesser resistance shall be achieved using the earthing arrangement. Perforated cable trays of 16 gauge or thicker and UPVC/corrugated PVC pipes shall be installed with seamless terminations. The cable tray shall not be physically accessible for routine work. Copper bus bars, Manual disconnect, Flexible pipes, glands, conduits, cables ducts shall be installed as per site engineer instructions. Conduits shall have 30% or higher spare capacity. Labeling of all cables shall be performed in compliance with IEC Standard 62491.

#### **c) Breakers, Surge Arrester, LV Panel etc.**

Circuit breaker, Protection devices and Non-Isolated Lightning Arrestors shall be installed as per Employer Design. MCB/MCCB Circuit breaker for each string shall be rated for more than 1.5 times the STC current rating of the string. Under all circumstances circuit breaker rating must be less than the fuse rating of PV Module. In case of installation of LV panel, the panel shall be IP65 rated of galvanized material with at least 16 gauge. The panel shall have protection scheme compliant with IEC Standard 62548, input and output circuit breakers as per IEC Standards, bus bar current bearing capacity as per requirement, and isolators for bus bars and AC grounding bus bar. The panel shall have digital Ammeter and Voltmeter, RYB indicator with breather vents on both sides of cabinets with RAL Color: 6021. The whole system must be grounded with complete protection system of lightening.

#### **d) Monitoring and Control System:**

Online and real-time monitoring shall be provided with the following parameters.

1. Energy generation (kWh)
2. Power production (kW)
3. String-level monitoring of Voltage and Current
4. Storage of 1 TB and monitoring data for at least 3 years
5. Power utilization on each phase.

#### **e) Net Metering Application and Installation of Bidirectional Meter**

The Contractor shall comply with all prevailing regulations set forth by NEPRA/ AJK electricity department for net metering purposes including load flow studies on requisite software. Preparation and processing of application for net metering along with requisite clarifications shall be arranged by the Contractor in the Project timelines.



## Technical Bid Evaluation Criteria

### I. Detail of project/General Experience

SR	Description	Marks Assigned	Explanation of Marks Obtained/ Credit
1	Projects of Similar Nature completed in last 10 years	10	4 marks will be given if the contractor has completed at least 02 projects of similar nature. 6 marks will be given if the contractor has completed at least 01 project.
2	Project in-hand similar nature	10	10 marks will be given if the contractor has at least 2 projects in hand of similar nature
3	Enlistment record with Government Organization	05	1 Marks for each enlistment
4	Work Schedule	05	
5	Total Marks Allocated	30	

### II. Financial Statement

Sr	Description	Marks Assigned	Criteria for Marks Obtained
1	Financial turnover for the following period 2019 to 2023 till date (Bank Statement for last 5 years to be attached)	10	Credit for sum of turnover during the periods 2019 to 2023 till date. <ol style="list-style-type: none"> <li>1. 10M-20M</li> <li>2. 21 M- 40 M</li> <li>3. 41 M and above</li> <li>4. Minimum turnover Rs 5.0 M for one year</li> </ol>
2	Income Tax return for Last five years	05	5 Points will be added in case of Valid submission
3	Litigation History in which Decision has been given against the firm/ Blacklists	05	In case the firm is involved in any litigation, no marks will be given and 5 points will be added in case affidavit of no litigation is attached
4	Tool/Plant/Machinery	30	<ul style="list-style-type: none"> <li>. Digital Clamp Meter, Required Quantity 03</li> <li>. Insulation Resistance Tester, RQ.03</li> <li>. Tool Kit for electric work, RQ.03</li> <li>. Thickness Guage, RQ.02</li> </ul>

			<ul style="list-style-type: none"> <li>. Motor Vehicle, Double Cabin + Loader Vehicle</li> <li>. Authorized Dealership, 02xPV Modules 02x Invertors 02xBatteries</li> <li>. Local Office in ISB/RWP</li> <li>. Serial no along with photograph must be attached</li> </ul>
	<b>Total Marks Allocated</b>	<b>50</b>	

### III. Technical Staff

Sr	Description	Marks Assigned	Explanation for Marks Obtained/Credit
1	B.Sc Engineers registered with Pakistan Engineering Council (PEC)	10	<p>Experience</p> <p>6 Marks will be given if the individual experience of at least one B.Sc Engineer is equal to 5 years or above</p> <p>4 marks for other B.Sc Engineers</p>
2	Associates Engineers (DAE)	10	<p>10 Marks will be given if the individual experience of 02 no of Associates Engineers (9DAE) is equal to 5 years or above. (5 for each individual)</p>
	<b>Total Marks Allocated</b>	<b>20</b>	