

**TENDER (E – PUBLISHING MODE)**

**FOR**

**SUPPLY & INSTALLATION OF SOLAR ARRAY SIMULATOR**

**IN SCHOOL OF COMPUTING & ELECTRICAL ENGINEERING,**

**AT IIT MANDI**



**Tender No.: IITMANDI/S&P/PUR-08/2016-17/918-19**

**Tender date: 30<sup>th</sup> April, 2016**

**Last Date of submission: 23<sup>rd</sup> May, 2016**

Indian Institute of Technology Mandi

Administrative Block in Bamboo Hut, Near Director Office, Kamand Distt. Mandi (H.P) -  
175005

**Tel.:** 01905-267039

**Email:** [bhakti@iitmandi.ac.in](mailto:bhakti@iitmandi.ac.in) & [arsp@iitmandi.ac.in](mailto:arsp@iitmandi.ac.in)

Indian Institute of Technology Mandi, Mandi invites tender for supply, erection, installation, commissioning, testing, demonstration and training of **Solar Array Simulator**, as per specifications given in the Annexure attached to the Tender form. All offers should be made in English and should be written in both figures and words. Tender forms can be downloaded from the website (<http://iitmandi.ac.in/administration/tenderseoi.html>) of the Institute & CPP Portal <http://eprocure.gov.in/epublish/app>. **The bidder can also submit bids online. To submit bid online, please see the tender document available on (<http://eprocure.gov.in/eprocure/app>)**

The bidders are requested to read the tender document carefully and ensure compliance with all specifications/instructions herein. Non-compliance with specifications/instructions in this document may disqualify the bidders from the tender exercise. The Director, IIT Mandi, Kamand reserves the right to select the item (in single or multiple units) or to reject any quotation wholly or partly without assigning any reason. Incomplete tenders, amendments and additions to tender after opening or late tenders are liable to be ignored and rejected.

### **Terms and Conditions:**

1. The technical and financial bids should be quoted separately and put in different sealed envelopes marked “**Technical bid**” or “**Financial bid**” as applicable. These separate bids envelopes are to be put in an outer envelope which should also be sealed.
2. The Vendors who have earlier supplied the equipment to any of the IITs, IISc, IISERs and other Scientific Institute of National Repute may only tender. The details of such institutions and the cost with name of equipment may also be supplied with the bids.
3. The technical and financial bids should be submitted in original. The financial bid should include the cost of main equipment/item and its accessories. If there is any separate cost for installation etc. that should be quoted separately.
4. Each individual sealed envelope as well as the outer envelope should be marked with the following reference on the top left hand corner: “**IITMANDI/S&P/PUR-08/2016-17/918-19/Item Name. \_\_\_ dated 30<sup>th</sup> April, 2016**”
5. The printed literature and catalogue/brochure giving full technical details should be included with the technical bid to verify the specifications quoted in the tender. The bidders should submit copies of suitable documents in support of their reputation, credentials and past performance.
6. The rates should be quoted in figures (typed or printed) and cutting should be avoided. The final amount should be in figures as well as in words. If there are cuttings, they should be duly initialed, failing which the bids are liable to be rejected.
7. Any bids received after **1:00 P.M. on 23<sup>rd</sup> May, 2016** shall not be considered
8. The Technical Bids will be opened on **23<sup>rd</sup> May, 2016 at 03:00 P.M.** The date & time for opening of Financial Bids will be informed later on to the technically qualified bidders.
9. While sending rates, the firm shall give an undertaking to the effect that “*the terms/conditions mentioned in the enquiry letter/Tender Notice against which the rates are being given are acceptable to the firm.*” In case the firms do not give this undertaking, their rates will not be considered.

10. If the supplier/firm is original equipment manufacturer (OEM)/authorized dealer/sole distributor of any item, the certificate to this effect should be attached.
11. The quantity shown against the item is approximate and may vary as per demand of the Institute at the time of placing order.
12. All tender documents should have to be sent through courier, speed post or registered post only. All tender documents received after the specified date and time shall not be considered.

The postal address for submitting the tenders is:

**“Assistant Registrar, Stores and Purchase”  
Indian Institute of Technology Mandi (IIT Mandi),  
Administrative Block in Bamboo Hut, Near Director Office,  
Kamand Distt. Mandi – 175005 (H.P), India”**

13. In the event of any dispute or difference(s) between the vendee Institute (IIT Mandi) and the vendor(s) arising out of non-supply of material or supplies not found according to specifications or any other cause whatsoever relating to the supply or purchase order before or after the supply has been executed, shall be referred to “The Director, IIT Mandi”, Kamand who may decide the matter himself or may appoint arbitrator(s) under the arbitration and conciliation Act,1996. The decision of the arbitrator shall be final and binding on both the parties.
14. The place of arbitration and the language to be used in arbitral proceedings shall be decided by the arbitrator.
15. All disputes shall be subject to Mandi Jurisdiction only.
16. All tenders in which any of the prescribed conditions is not fulfilled or any condition is putforth by the tenderer shall be summarily rejected.
17. The bidders or their authorized representatives may also be present during the opening of the Technical Bid, if they desire so, at their own expenses.

**Note:** Price bids of only those bidders will be opened whose technical bids are found suitable by the committee appointed for the purpose. Date and time of opening of price bids will be decided after technical bids have been evaluated by the committee. Information in this regard will be intimated to the technically qualified bidders. In exceptional situation, an authorized committee may negotiate price with the qualified bidder quoting the lowest price before awarding the contract.

18. **Clarifications:**

In case the bidders requires any clarification regarding the tender documents, they are requested to contact our office (e-mail: [bhakti@iitmandi.ac.in](mailto:bhakti@iitmandi.ac.in) & [arsp@iitmandi.ac.in](mailto:arsp@iitmandi.ac.in) on or **before 15/05/2016**).

19. **Tender Cost:**

The bidder should submit a demand draft of **Rs. 1,000/- (Rupees One Thousand only)** towards non-refundable **tender fee, drawn in favour of “The Registrar, IIT Mandi”** payable at Mandi should accompany the Technical bid documents. The tender fee should be kept in a separate sealed envelope, should be marked clearly and put in the

outer envelope that contains the technical and financial bid envelopes. In the absence of tender cost, the tender will not be accepted.

20. **Earnest Money Deposit (EMD):**

Bidder should furnish an EMD a refundable amount of **Rs 22,000/-** in the shape of DD drawn in favour of **“The Registrar, IIT Mandi” payable at Mandi** should accompany the bid documents. The EMD should be kept in a separate sealed envelope, should be marked clearly and put in the outer envelope that contains the technical and financial bid envelopes. The bidders should enclose a pre-receipted bill for the EMD to enable us to return the EMD of unsuccessful bidders. Failure to deposit **Earnest Money** will lead to rejection of tender. The bidders should submit separate EMD. In the event of the awardee bidder backing out, EMD of that bidder will be forfeited.

21. **Pre – Qualification Criteria:**

- a. Bidders should be the manufacturer / authorized dealer. Letter of Authorization from original equipment manufacturer (OEM) on the same and specific to the tender should be enclosed.
- b. The Vendors who have earlier supplied the equipment to any of the IITs, IISc, IISERs and other Scientific Institute of National Repute may only tender. The details of such institutions and the cost with name of equipment may also be supplied with the bids.
- c. An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and extend support for the warranty as well.
- d. OEM should be internationally reputed Branded Company.
- e. Non-compliance of tender terms, non-submission of required documents, lack of clarity of the specifications, contradiction between bidder specification and supporting documents etc. may lead to rejection of the bid.
- f. **Furnishing of wrong/ambiguous information in the compliance statement may lead to rejection of bid and further black listing of the bidder, if prima-facie it appears that the information in the compliance statement was given with a malafide/fraudulent intent.**

22. **Prices:**

- (a) The Prices quoted should be inclusive of all taxes or duties, packing, forwarding, freight, insurance, delivery and commissioning etc. at destination site (IIT Mandi, Mandi/Kamand). IIT Mandi is registered with DSIR, Govt. of India and is exempted from Custom / Excise Duty. Exemption Certificate to this effect will be issued by IIT Mandi. **Hence, Customs/Excise Duty exempted price should be quoted.** The rates shall be firm and final. Nothing extra shall be paid on any account.
- (b) **In case of imports, the price should be quoted on ex-work price/FOB/FCA basis only. Under special circumstance (e.g. perishable chemicals), when the item is imported on CIP/CIF, please indicate CIF/CIP charges separately upto Delhi indicating the mode of shipment. IIT Mandi will make necessary arrangements for the clearance of imported goods at the Airport/Seaport.**

- (c) In case of imported equipment(s)/item(s), the agency commission, if any, payable in Indian rupees should be mentioned separately. **IAC shall be paid after satisfactory installation & commissioning of the goods at the destination.** For imported equipment, the Letter of Credit will be opened for the amount excluding agency commission in Indian Rupees. The firm should clearly mention the address of foreign bank in the financial bid.
- (d) **In case of indigenous item, the vendor should clearly mention the final FOR IIT Mandi, Kamand Campus Price, as applicable in their bid.**

**23. Validity:**

The bid should be valid for acceptance up to a period of 180 Days. The Bidders should be ready to extend the validity, if required without any additional financial implications.

**24. Delivery:**

The Equipment should be delivered and installed within the period as specified in the purchase order and be ready for use within 24 weeks of the issue of purchase order unless otherwise prescribed. If the bidder fails to deliver and place any or all the Equipments or perform the service by the specified date, penalty at the rate of 1% per week of the total order value subject to the maximum of 10% of total order value will be deducted.

**25. Installation, Training & Demonstration:**

Bidders need to provide adequate training to the nominated persons of IIT Mandi at their cost. IIT Mandi will not bear any training expenditure. The supplier is required to done the installation and demonstration of the equipment within **one month** of arrival of materials at the IIT Mandi site of installation, otherwise the penalty clause will be the same as per the supply of material.

**26. Warranty Declaration:**

Bidders must give the comprehensive on-site warranty as required from the date of successful installation of Equipment against any manufacturing defects and also give the warranty declaration that *“everything to be supplied by us hereunder shall be free from all defects and faults in material, workmanship and shall be of the highest quality and material of the type ordered, shall be in full conformity with the specification and shall be complete enough to carry out the experiments, as specified in the tender document.*

Any deviation in the material, and the specifications from the accepted terms may liable to be rejected and the bidders need to supply all the goods in the specified form to the satisfaction / specifications specified in the order / contract and demonstrate at their own cost.

- 27. Performance Bank Guarantee:** A performance bank guarantee from a scheduled bank in India for an amount equal to 10% of the price for duration of two months beyond the expiry of warranty period will be taken from the supplier or Indian agent.

28. **Terms of Payment:** Payment will generally be made only after delivery and satisfactory installation, testing, commissioning etc. **This must be specified in the tender/quotation.**
- In case of imported supplies, payment (excluding Indian agency commission, if any) will be made through irrecoverable Letter of Credit in two installments. 80 % of the money will be released on submission of shipping of documents. Remaining 20 % will be released after successful installation of the instrument and submission of a performance bank guarantee for 10% of the order value from a nationalized bank, valid for 2 months beyond the expiry of the warranty.
  - In case of required item quoted in INR, 80% payment will be made through e-payment after receipt of material in good condition and Remaining 20 % will be released after successful installation of the instrument and on submission of a performance bank guarantee for 10% of the order value from a nationalized bank, valid for 2 months beyond the expiry of the warranty.
29. **Tender expenses and documents:** All costs incurred by the bidder in the preparation of the tender shall be at the entire expense of the bidder.
30. **Tender Evaluation Criteria:** The technical bids will be opened and evaluated by a duly constituted committee. After evaluation of the technical bid, the financial bid for only those offers which have qualified in the evaluation of technical bid will be opened.
31. **Return of EMD:**
- The earnest money of unsuccessful bidders will be returned to them without any interest within 15 working days after awarding the contract.
  - The earnest money of the successful bidder will be returned to them without any interest within 15 Days after supply of material.
32. **Manual and documentation:** All the manuals necessary for operating and servicing the equipment (including details of electronic circuits) will have to be provided along with the instrument.
33. The IIT Mandi reserves the right to cancel the tender at any stage (point of time) without assigning any reason.
34. Bidders should go through the tender terms, conditions and specifications carefully and fill in the attached compliance statement accurately and unambiguously. They should ensure that all the required documents are furnished along with the bid.

Sd/-  
**Assistant Registrar**  
**Stores & Purchase**

## **BID PARTICULARS**

1. Name of the Supplier :

2. Address of the Supplier :

3. Availability of demonstration of equipment : Yes / No

4. Tender cost enclosed: : Yes/No if yes

D.D. No. \_\_\_\_\_ Bank \_\_\_\_\_ Amount \_\_\_\_\_

5. EMD enclosed : Yes / No if  
(Yes)

D.D. No. \_\_\_\_\_ Bank \_\_\_\_\_

6. Name and address of the Officer/contact person to whom all references shall be made regarding this tender enquiry.

Name :

Address :

Telephone No. :

Fax No. :

Mobile No :

e-Mail :

Web

**Ref:-ENQUIRYNO:-IITMANDI/S&P/PUR-08/2016-17/Solar Array Simulator**

**Functional Specifications:-**

- 1) User programmable I-V curve generation with an easy to use graphical interface with a PC, along with required software support
- 2) All functions in the simulator should be controllable via user interface on a PC
- 3) Accurate simulation of all types of solar PV technology with required software support via PC
- 4) Accurate simulation of weather conditions including changes in irradiance, temperature and partial/complete shadowing/shading of panels with required software support via PC
- 5) Easy creation of I-V curves based on Sandia National Lab and EN50530 regulations, with a possibility of editing the data
- 6) Minimum I-V curve resolution of 1000 points
- 7) Fast I-V curve change with fast switching time between the curves (update rate of  $\leq 1$  second)
- 8) Standard LAN/USB/GPIB interface/s for connection to the PC

**Solar Array Simulator with the following specifications:-**

**Qty 2**

- 1) Internal generation of an I-V curve ( $\geq 1000$  points) under different conditions of irradiation, temperature, partial/complete shadowing/shading of panels
- 2) Output maximum open-circuit voltage: Between 130 V and 200 V
- 3) Output current:  $\geq 5$  A
- 4) Power:  $\geq 500$  W
- 5) I-V curve changes: The simulator must be capable of fast switching between different IV curves with an update rate of  $\leq 1$  second.
- 6) Low output capacitance ( $\leq 50$  nF, lower the better)
- 7) Voltage programming accuracy\*  $\leq 0.3$  V
- 8) Current programming accuracy\*  $\leq 0.03$  A  
\*Voltage and Current accuracy calculations must be provided, if the accuracy is mentioned as a percentage of full scale ratings.
- 9) Connectivity: System must have capability for connections with the PC via at least one of the following:
  - a. Ethernet
  - b. USB
  - c. GPIB
- 10) Scalability: Possibility of series/parallel connection of simulators, for higher output voltage/current as needed (*refer to point nos. 1 and 2 in Notes section*).



- 11) Safety: System must be equipped with Overvoltage and Overcurrent protections for safety of device under test.
- 12) Input mains power: Compatible with Indian power standards, single phase 230V/50Hz voltage.

### **C. Notes**

- 1) Additional features/software for teaching/research purposes are desirable, in addition to the basic PC interface software. The additional features/software should be separately mentioned.
- 2) Any additional hardware/software necessary (other than the PC) for running the simulator modules (alone/parallel together) must also be included in the quotation.
- 3) **Warranty: Minimum 3 year warranty** mandatory with optional extended warranty
- 4) A quick technical support (telephonic/email) should be provided to users at IIT Mandi whenever required.
- 5) Details of mode of servicing/repair of the equipment should be provided.
- 6) Upgrading: The firmware/software should be upgraded whenever new features become available. Any deviation from this should be clearly indicated

**COMPLIANCE STATEMENT FOR THE TENDER SPECIFICATIONS**  
**INDIAN INSTITUTE OF TECHNOLOGY MANDI**  
**HIMACHAL PRADESH-175001**

**Ref:-ENQUIRY NO:- IITMANDI/S&P/PUR-08/2016-17/ Solar Array Simulator**

**Instructions:**

1. You have to fill in all columns and ensure that you furnish all the required information accurately and unambiguously.
2. If our specification contains any values, you have to provide your values against the column in the same unit as we have specified.
3. Deviation in values, materials etc. from our specification may be explained in the remarks column

<b>Sr. No.</b>	<b>Check list of documents/ Undertakings ?</b>	<b>YES/NO</b>	<b>Remarks (Give explanation if answer is No)</b>
1	Is Tender fees attached?		
2	Is EMD attached? (if applicable)		
3	Is the bidder original equipment manufacturer (OEM)/authorised dealer?		
4	If authorised dealer, recent dated certificate to this effect from OEM, attached or not?		
5	Undertaking from OEM regarding technical support & extended warranty present		
6	Validity of 180 days or not?		
7	Undertaking from bidder regarding acceptance of tender terms & conditions		
8	Attach user list of quoted model only, with complete contact details.		
9	Whether list of reputed users (along with telephone numbers of contact persons) for the past three years specific to the instrument attached.		
10	Whether special educational discount for Indian Institute of Technology (IIT) Mandi (H.P) given.		
11	Whether required weeks training of operator/research students without any charges offered		
	<b>Technical Specifications:</b>		
	<b>Solar Array Simulator with the following specifications:</b>		
12.	<b>Functional Specifications:-</b>  1) User programmable IV curve generation with an easy to use graphical interface with a PC, along with required software support 2) All functions in the simulator should be		

	<p>controllable via user interface on a PC</p> <ol style="list-style-type: none"> <li>3) Accurate simulation of all types of solar PV technology with required software support via PC</li> <li>4) Accurate simulation of weather conditions including changes in irradiance, temperature and partial/complete shadowing/shading of panels with required software support via PC</li> <li>5) Easy creation of IV curves based on Sandia National Lab and EN50530 regulations, with a possibility of editing the data</li> <li>6) Minimum I V curve resolution of 1000 points</li> <li>7) Fast IV curve change with fast switching time between the curves (update rate of <math>\leq 1</math> second)</li> <li>8) Standard LAN/USB/GPIB interface/s for connection to the PC</li> </ol>		
13	<p><b>Solar Array Simulator with the following specifications:-</b></p> <ol style="list-style-type: none"> <li>1) Internal generation of an IV curve (<math>\geq 1000</math> points) under different conditions of irradiation, temperature, partial/complete shadowing/shading of panels</li> <li>2) Output maximum open-circuit voltage: Between 130 V and 200 V</li> <li>3) Output current: <math>\geq 5</math> A</li> <li>4) Power: <math>\geq 500</math> W</li> <li>5) I-V curve changes: The simulator must be capable of fast switching between different IV curves with an update rate of <math>\leq 1</math> second.</li> <li>6) Low output capacitance (<math>\leq 50</math> nF, lower the better)</li> <li>7) Voltage programming accuracy* <math>\leq 0.3</math> V</li> <li>8) Current programming accuracy* <math>\leq 0.03</math> A</li> </ol> <p>*Voltage and Current accuracy calculations must be provided, if the accuracy is mentioned as a percentage of full scale ratings.</p> <ol style="list-style-type: none"> <li>9) Connectivity: System must have capability for connections with the PC via at least one of the following: <ol style="list-style-type: none"> <li>a. Ethernet</li> <li>b. USB</li> <li>c. GPIB</li> </ol> </li> <li>10) Scalability: Possibility of series/parallel connection of simulators, for higher output</li> </ol>		

	<p>voltage/current as needed (<i>refer to point nos. 1 and 2 in Notes section</i>).</p> <p>11) Safety: System must be equipped with Overvoltage and Overcurrent protections for safety of device under test.</p> <p>12) Input mains power: Compatible with Indian power standards, single phase 230V/50Hz voltage.</p>		
14	<p><b>Notes</b></p> <p>1) Additional features/software for teaching/research purposes are desirable, in addition to the basic PC interface software. The additional features/software should be separately mentioned.</p> <p>2) Any additional hardware/software necessary (other than the PC) for running the simulator modules (alone/parallel together) must also be included in the quotation.</p> <p>3) <b>Warranty: Minimum 3 year warranty</b> mandatory with optional extended warranty</p> <p>4) A quick technical support (telephonic/email) should be provided to users at IIT Mandi whenever required.</p> <p>5) Details of mode of servicing/repair of the equipment should be provided.</p> <p>6) Upgrading: The firmware/software should be upgraded whenever new features become available. Any deviation from this should be clearly indicated</p>		
26	<p><b>Annual Maintenance Contract may be quoted as optional</b></p>		
27	<p><b>Installation and Training:</b></p> <p><b>1. On-site installation and demonstration of the system</b></p> <p><b>2. training to get hand-on experience with the system</b></p>		