भारतीय प्रौद्योगिकी संस्थान (भारतीय खनि विद्यापीठ), धनबाद
धनबाद, झारखण्ड, भारत, पिन-826004
(मानव संसाधन एवं विकास मंत्रालय, भारत सरकार के अधीन एक राष्ट्रीय महत्त्व का संस्थान)
INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD
DHANBAD, JHARKHAND, INDIA, PIN-826004
(An Institute of National Importance under Ministry of H.R.D., Govt. of India)
STORES & PURCHASE SECTION Phone:(0326) 2235678 || Email : purchase@ismdhanbad.ac.in || Website : www.iitism.ac.in

No. CERE-500104-2017-18 Date: June 20 , 2017

NOTICE INVITING TENDER

Subject: Supply & Installation of Grid Tied Solar PV System

Indian Institute of Technology (Indian School of Mines), Dhanbad invites quotations for the following to be supplied and delivered in CERE Department.

S No	Full Description of items/ store	Qty	Delivery
1	**Supply & Installation of Grid Tied Solar PV System** (Detailed Specification is given in Annexure – I)	01 No	At the Earliest

Tender Schedule

Particulars	Date & Time
Last date and time for submission of tenders	**24.07.2017 at 1:00 P.M.**
Date and time of opening of tenders	**24.07.2017 at 4.00 P.M.**

1. You are requested to quote your lowest rates for the supply of above items in the attached format for Financial Bid (Annexure – II)
2. You may send your representative in the office of the undersigned at the scheduled date and time of opening of tender.
3. Tender should be submitted in sealed cover only super scribed with Enquiry No. and due date at the following address only:

The Deputy Registrar (P&S)
Indian Institute of Technology (Indian School of Mines),
Dhanbad – 826 004 Jharkhand

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Terms & Conditions

1) The rates should be quoted for each item separately.
2) Conditional offer will not be accepted.
3) IIT (ISM) does not issue any Form 'C' or 'D' towards sales tax concessional rate. Hence, full rate of sales tax/VAT applicable should be quoted.
4) ***Educational discount,*** if any, should be clearly mentioned.
5) You are requested to submit your quotation strictly as per the specifications mentioned in the NIT.
6) Your tender must be valid for **minimum 90 days** from the date of opening of tender.
7) Please mention warranty/ guarantee in your offer clearly. Material/ equipment to be supplied must have minimum warranty/guarantee of **12 months.**
8) *Each page in the bid document must be numbered properly* and duly signed & sealed by the bidder on every page of the bid.
9) **The items/ materials shall be required to be delivered at CERE Department/ Section through Purchase & Store Section, IIT (ISM) Dhanbad** at the risk and cost of the tenderer.
10) Unloading and installation shall be the complete responsibility of the supplier.
11) The stores are required to be delivered within 30 days. Late delivery may not be accepted.
12) The items offered should be of good quality confirming to BIS standards, wherever applicable.
13) ***Advance payment is not admissible.*** Payment shall normally be made within 3-4 weeks subject to receipt and acceptance & installation (as per Purchase Order Terms) of the ordered materials/items.
14) In the event date on which the tender is opened for acceptance is declared to be a holiday, the tenders shall be deemed to remain open for acceptance till the next working day.
15) Please send your offer by Regd.Post/ Speed Post/ Courier along with Courier receipt. Tender/ quotation will be received during IIT (ISM) working hours only (i.e. Monday to Friday). *Late or delayed tenders shall be summarily rejected.*
16) Any other information that you may like to obtain, you are free to contact IIT (ISM) before submission of tender.
17) IIT (ISM) reserves the right to accept and/or to reject any/ all tenders without assigning any reason.

20/6/17
Assistant Registrar

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ANNEXURE- I

Detail Technical Specifications

Name of the Item: GRID TIED SOLAR PV SYSTEM

Item Name	Technical Specifications
Solar Panel	• 2KWp solar panel, polycrystalline: 8 numbers, each of 250Wp, 24V (nominal) with efficiency not less than 15%
Solar MPPT Charge Controller	• Solar MPPT charge controller of 2 kWp, interleaved PWM 180 deg. phase shifted two converter units. • Fully controlled buck-boost converter configuration: Configurable to step down and step up: 40A max current. • IGBT based PWM switching for buck/boost operation. • Advanced TI320F2000 series high speed micro-controller based control • Provision for connecting external charge controller/own developed charge controller with the inverter in future.
Grid tied Solar Inverter	• Single-phase, IGBT based three-level power inverter of 3 KVA power rating with proper dead time. • Sinusoidal PWM based control for IGBT switching. • Isolated suitable gate drivers for the IGBTs. • Inverter voltage waveform synchronization to the grid for grid feeding. • Transformer (3KVA) with two primary taps: 50V and 80V, output secondary 250V with L-C-L filter at grid side with ripple factor less than equal 5%. • Accessibility of all power terminals to observe their nature using DSO. • Accessibility of all feedback signals (currents and voltages) so that they can be sampled by external controller for the purpose of developing independent control other than the existing controller.
Control	• Development of complete control system using advanced TMS320F280xx. • Sampling of analog signals using 12 bit ADC: solar voltage, solar current, output voltage, output current, heatsink temperature at very high speed. • Provision of bypassing PWM signals produced by the existing processor and flexibility of providing external PWM signals
Meter	• Suitable Credit-debit Meter to observe net savings needs to be provided
Display	• 4 line, 20 character LCD display. • Display parameters: solar voltage, solar current, output voltage, output current, heat sink temperature, STATE, fault (if any)
Protection	• Output short circuit, over voltage, over load and islanding.
Installation	• Complete installation and demonstration of the whole system is required. Necessary mechanical structures for fixing the solar panels at roof top of multiple storied (G+6) building along with the necessary cabling with low loss electrical cable from rooftop to the laboratory at second floor of the building need to be provided.
Terms & Conditions	• Warranty: 3 years for the whole system and at least 20 years for solar panels. • Original challan along with the warranty certificates from manufacturer of Solar PV panel and other parts, required for developing the system to be provided at the time of installation • Bidders should submit the relevant technical literature indicating the detail technical specification of the indented item with circuit diagram and operating principle • Parties may be called for clarification of technical specification if required. In that case, no TA, DA, Accommodation will be provided by the IIT(ISM) authority • Detail design with necessary block diagram/circuit diagram of the whole system needs to be approved by the purchase committee of IIT(ISM) before developing/fabricating/assembling the system.

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Annexure - II

Format for Financial Bid

NIT No.: CERE-500104-2017-18 Date:

Bidders Ref: No. Date:

Subject: Supply & Installation of Grid Tied Solar PV System

Sl. No.	Full Description of Items	Qty.	Rate	Amount
		Packing & Forwarding (if any)		
		Total		
		CST/VAT (if any)		
		Freight (if any)		
		Installation (if any)		
Amount should be in figure as well as word		**Grand Total**		

Note:
1) All the details must be provided as per prescribed format only
2) Prices quoted by the bidders should include all local taxes, VAT, service tax, duties, livies, transportation cost and insurance costs etc. if any
3) All the rates must be quoted in Indian Rupees.

20/6/17