NATIONAL INSTITUTE OF TECHNOLOGY SILCHAR

Silchar – 788 010 (ASSAM)

No: NITS/PS-683/EE/Real Time Simulator/19   Date: 14 / 03/2019

NOTICE INVITING TENDER

FOR SUPPLY AND INSTALLATION OF REAL TIME SIMULATOR FOR EE DEPARTMENT

AT NIT SILCHAR

LAST DATE & TIME OF SUBMISSION   :   11/04/2019 up-to 01.00 PM

DATE & TIME OF OPENING   :   11/04/2019 at 03.30 PM

NOTICE INVITING TENDER

Adv. No: NITS/PS-683/EE/Real Time Simulator/19

Sealed Tenders are invited from reputed Firms/Agencies/Manufacturer/Authorized Dealer **FOR SUPPLY AND INSTALLATION OF REAL TIME SIMULATOR FOR EE DEPARTMENT AT NIT SILCHAR along with Earnest Money Deposit (EMD) @2% of the total bid value in the form of Demand Draft/Bank Guarantee in favour of "The Director, NIT Silchar", Payable at Silchar. No Interest shall be paid on EMD at the time of return. Bidders registered as NSIC/SSI/MSME are exempted. Necessary Certificate in support must be furnished where applicable.**

Detail specification of required item/items are given in **(Annexure–A).**

Tender document can be obtained from Purchase Section, NIT Silchar or may be downloaded from our website www.nits.ac.in or http://eprocure.gov.in. **The cost of tender document is Rs.1,000/-** (Non-refundable) to be submitted in the form of DD in favour of The Director, NIT Silchar-788010, Payable at Silchar. The last date and time for submission of Tender document will be **11 / 4 /2019** up-to **01.00PM** and tender(technical bid) will be opened on the same date at **03.30 PM** in office of HOD, EE Dept., NIT SILCHAR. Price bid of technically qualified bidders only shall be opened in a later date with prior intimation.

The offers without Cost of Tender & Earnest Money Deposit (EMD) shall out rightly be rejected.

Director, NIT Silchar reserves the right to extend the date or cancel the tender, accept or reject any/all tenders or not to purchase all or any of the items.

Tenders are to be sent/submitted in sealed covers addressed to:-

> **The Faculty-In-Charge, Purchase**
>
> **National Institute of Technology, Silchar-788 010, Cachar, Assam**
>
> **Email : purchasecell.nits@gmail.com**

Registrar, NIT Silchar

NOTICE INVITING TENDER

Credential Criteria:

- The bidder should have provided similar nature of services to IITs/NITs/Govt. Departments/Semi Govt. Departments/PSU/Educational Institutions of National Importance etc. during last 3(three) years. **Duly certified copies are to be enclosed.**

- Tender/Quotations are to be submitted in **TWO PARTS** i.e. **(a) Technical Bid and (b) Price Bid**, in two separate properly sealed covers; and both these covers will have to be again put in to a single sealed cover. Also, the full address of the firm submitting the tender/quotation must appear distinctly with PIN on both the inner sealed covers, indicating also **TECHNICAL BID/ PRICE BID** as may be applicable. The outer most cover shall be super scribed as

- **"QUOTATION FOR SUPPLY & INSTALLATION OF** ....**...FOR** ....**...... NIT SILCHAR.**

- **VIDE TENDER REF NO NITS/PS-**.., DATED..

  DATE OF OPENING ....

  [The bid will summarily be rejected & returned to the bidder if the sealed envelope containing the quotation is not super scribed as above].

- **Genuine Pricing** (Both foreign & indigenous) :Vendor is to ensure that quoted price is not more than the price offered to any other customer in India to whom this particular item has been sold recently, particularly to IIT/Institutes and other Government Organization.
- **No Part Delivery:** Part shipment for any items will not be allowed.
- **Any Optional item quoted by the supplier will not be entertained.**
- **Termination for default :** Default is said to have occurred -
- If the supplier fails to deliver any or all of the items/services within the time period(s) specified in the purchase order or any extension thereof granted by NIT Silchar, the Institute may terminate the contract / purchase order in whole or in part and forfeit the EMD/PBG as applicable.

TERMS & CONDITIONS:

1. The bidding agency should be reputed firm and having all necessary certificates, viz. GST registration certificate, PAN, Registration, Sale Tax clearance Certificate, Authorized Dealership/Distributorship certificate, etc. The photocopies of all the certificates should be attached with the tender.

2. The firm should be an original equipment manufacturer (OEM) in the business of manufacture or supply of equipment for minimum 3-5 years. The firm should submit audited financial statements for latest three financial years in support of this claim.

3. The items being quoted should be of Original Manufacturer and no non-standard item should be quoted. All detailed specifications with make & model no. of the items accompanied by proper leaflets should be clearly mentioned and attached with the offer. In case of **proprietary** or **patented** item, necessary certificates in support of the same should be attached. The bidder must submit the Compliance Statement and Deviation Statement of technical specification.

4. The firm should have satisfactorily manufactured or supplied equipment, as requisitioned in this tender, to IITs/NITs/Govt. Departments/Semi Govt. Departments/PSU/Educational Institutions of National Importance etc. during the last 3(three) years ending the last day of March 2018.

5. **The rate quoted must be both in words and figures and F.O.R. / Destination National Institute of Technology Silchar -788010, Assam inclusive of all charges i.e. packing, forwarding, octroi, surcharge, insurance, installation, demonstration and other charges if any. Educational discount, if any should be indicated clearly. Tenderer(s) may note that the Government of India exempts this Institute from paying custom duty/excise duty. Charges of Custom Duty (after concession as per govt. of India), IGST, Custom Clearance without any fine /demurrage/ penalty shall be paid by the Institute on actual basis subject to submission of original supporting bill/ vouchers. Necessary documentation like DSIR, CDE, GST Concession Certificate, Declaration Certificate,**

Authorization letter regarding transportation of cleared consignment up-to NIT Silchar shall be provided by the Institute on submission of Order Acceptance and Proforma Invoice. Necessary documents will be furnished if required on demand by the Tenderer(s). Rate quoted for any other destination shall not be accepted and the bid will summarily be rejected. All the CUSTOM CLEARING ISSUES and delivery of ordered items up-to destination i.e. NIT Silchar must be handled by the Supplier only.

6. Quoted rate should be inclusive of all taxes. Nothing extra will be paid by the Institution. If there is any increase / decrease of statutory taxes will be reimbursed accordingly.

7. **Payment: Payment 100% shall be made only after receipt of ordered items as per specification and quantity and after successful installation, demonstration, training (where applicable) and commissioning.**

   - **Payment: In connections to foreign items payment shall be made through wire transfer / irrevocable Letter of Credit (90% through LC and 10% after receipt of ordered items as per specification, quantity, successful installation, demonstration, training (where applicable) and commissioning).**

8. Manufacturer's/Company's name, it's trademark should be mentioned in the tender and illustrative leaflets giving technical particulars, etc. should be attached in the tender.

9. Tenderer(s) registered with the State/Central Government must quote his registration numbers, if any, and submit a xerox copy of registration along with the tender.

10. Guarantee/Warranty period offered for the tendered item is to be clearly specified.

11. The rates to be quoted by the agency should be valid for a period of **6(six) months** after the deadline date specified in the tender.

12. The quantity against each item mentioned in the tender may vary according to the actual requirements at the time of placing Purchase Order.

13. **Each bidder should clearly specify that the bidder agrees to abide by the conditions of this tender document on their printed letter head duly sealed & signed by an authorized person.**

14. **Bid Price**

    a) **The contract shall be for the full quantity as described above. Corrections, if, shall be made by crossing out, initialing dating and rewriting.**

    b) **The bidder should quote the total price for each item inclusive of packing and forwarding, all duties, levies, insurance, installation, demonstration and any other charges, etc. only taxes & (discount if any) should be mentioned/shown separately.**

    c) **The rates quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.**

15. Each bidder shall submit only one quotation.

16. All necessary documents shall be furnished along with the bid.

17. **Validity:** Tenders/Quotations shall remain valid for a period not less than **6 (six) months** after the deadline date specified for submission of tender.

18. **Packing**

a) The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall have to be taken into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

b) The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be provided for in the Contract including additional requirements.

19. **Evaluation of Quotations :**

NIT Silchar will evaluate and compare the tender/quotations determined to be substantially responsive i.e. which

a)   are properly signed

b)   Conform to the terms and conditions, and specifications.

20.   **Award of contract:**

NIT Silchar will award the contract to the bidder whose tender/quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price.

a)   The bidder whose bid is accepted will be notified of the award of contract by the NIT Silchar prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the purchase order.

b)   Normal commercial warranty/guarantee shall be applicable to the supplied goods.

c)   The goods (both indigenous & imported) should be insured against theft, loss or breakage during transit till destination.

d)   Upon delivery of goods, the supplier shall submit Suppliers Invoice, Insurance certificate, Warranty Certificate, Installation Certificate, Performance Bank Guarantee (where applicable) or any other document as required/demand.

21. **Acknowledgement of the Purchase Order**: The supplier shall give an acknowledgement of the Purchase Order within 15(fifteen) days of the date of the Purchase Order. In case, the supplier fails to acknowledge the Purchase Order within the stipulated time, the Institute is at liberty to cancel the Purchase Order.

22. No alternations in tender forms shall be made by the bidder and if any such alteration is made, the tender is liable to be rejected.

   a) Delivery Schedule and Penalty for Delay: Delivery of equipment should be made **within 30(thirty) days OR as per terms and condition of Purchase Order** from the date of issue of Purchase Order. **Penalty at the rate of 0.5% or part thereof of the order value per week, subject to a maximum of 2.5% will be imposed for delayed delivery and installation.**

23. **Demurrages and penalty, if any, paid by the supplier shall not be borne by the Institute.**

24. The tenders submitted shall clearly mention the name of the firm/person in whose favour the purchase order is to be placed.

25. Contact details of the person for all post sales/installation maintenance support should clearly be given with **Name & Designation, Phone No, Fax No, Mobile, E-mail and official address.**

26. National Institute of Technology Silchar is not liable for non-receipt of the tender forms in time due to wrong address/ any delivery delay of the mail service provider/ force majeure. Tender documents received after the last date and time for receiving tenders will be summarily rejected.

27. **Successful bidder shall give a performance security @10% or (as per Purchase Order) of the total order value in the form of Bank Guarantee.** The performance security shall be furnished along with the Bill / Invoice after the order for supply is placed and before the final payment. Validity of the Performance Security shall cover the warranty period.

   - The proceeds of the Performance Security shall be payable to the purchaser as compensation for any loss resulting from the suppliers failure to complete its obligations under the contract.

28. All legal disputes shall be under the jurisdiction of the Silchar Courts of Cachar District in the state of Assam.

Registrar, NIT Silchar

DECLARATION

I / We hereby declare that no case is pending with the police/ court against the proprietor/ firm/ partner or the company (Agency). Also I /We have not been suspended / blacklisted by any PSU / Government Department / Financial Institution / Court.

(Signature & seal of the contractor)

Place:

Date:

NO DEVIATION CERTIFICATE

       Notwithstanding anything mentioned in our bid, we hereby accept all the terms and conditions of this tender and we do not have any deviation to this tender enquiry. We hereby undertake and confirm that we have understood the scope of work properly and shall be carried out as mentioned in this tender enquiry.

(Signature & seal of the contractor)

Place:

Date:

BIDDERS DETAILS

Name of the Contractor /Party/ Firm	:	
Name of Authorized Representative	:	
Phone Nos.	:	
Mobile Nos.	:	
Fax No.	:	
E-Mail Address	:	
Web Site Address (If Any)	:	

(Signature & seal of the contractor)

Place:

Date:

TECHNO-COMMERCIAL BID

	NAME OF THE WORK: Supply and Installation of ……………………….. at NIT Silchar				
	TENDER NO. : NITS/PS-……………………., Dtd.…………………………., LOS : ………………………………..				
Sl. No.	Name of item with Specification, Make & Model	QTY.	Rate per Unit in	Taxes in %	Total Amount in
				Sub Total Amount	
				Discount (if any)	
				Taxes (if any)	
				Other Charges (if any)	
				Grand Total Amount	
(AMOUNT IN WORDS)					

       I/ we have gone through all the Special & General Conditions and the contractor's obligations enclosed with this tender document and agree to abide by these.

Note: **In case of discrepancy in rates between figure & words the higher will be taken for evaluation of bid and lower value will be taken for award of work.**

(Signature & seal of the contractor)

Place:

Date:

CHECK-LIST (TECHNICAL BID)

SUMMARY OF COMPLIANCE TO REQUIREMENT OF TENDER

Sl. No.	Description of Requirement	Yes / No / NA	Page No.
1.	Tender Cost Rs.1000/- (Non-refundable) in the form of Demand Draft in favour of "Director, NIT Silchar" in a separate envelope		
2.	EMD @2% of total bid value in the form of Demand Draft /Bank Guarantee in favour of "Director, NIT Silchar" in a separate envelope		
3.	Copy of Manufacturer/ Authorized Supplier Certificate		
4.	Audited financial statement for the last 3 years		
5.	Copy of the PAN card.		
6.	Copy of GST registration certificate		
7.	Copies of previous work order of similar work with completion certificate (if any)		
8.	Declaration certificate		
9.	No Deviation certificate		
10.	Bidder's details		
11.	Technical Specification		
12.	NSIC/SSI/MSME Certificate where applicable		
13.	All the pages of tender document have been signed		
14.	Price bid in separate sealed envelope.		
15.	Complete copy of Techno Commercial Bid submit along with the Price Bid.		

(Signature & seal of the contractor)

Place:

Date:

Technical Specification

A. Real Time Simulator, Qty. Required : 01

1. Simulator should be a Rack mountable and modular in nature to allow future expansion.
2. Simulator should execute models from Simscape/SimPowerSystems/PSIM/PLECS/MultiSim /DYMOLA/AMESIM directly in Real time. Bidder must demonstrate during Technical Evaluation, if asked.
3. The hardware should work both as a Real time Controller as well as Real Time Simulator. It should facilitate Real Time Control Design Applications as well as Real Time simulation of Power system Network and Power Electronics Switches on the same hardware chasis.
4. Simulator Modelling Environment should be based on Matlab, Simulink & Sim Power Systems Blockset. It should aid development of custom logic & algorithms used in advanced control schemes (e.g., C s-function)
5. Simulator Software Should Include licenses of Host Real time interfacing Software, Real Time Operating System, Real-Time Kernel, Intel C++ Compiler,Real time event analyser&Real Time Target Licenses
6. Simulator Software should also include specialized Real Time Solvers for Power Systems, Power Electronics, Controls& Drives Applications.
7. Minimum count of I/O on the Simulator should be 16 AI, 16 AO, 32 DI, 32 DO.
8. Digital Input channels - 32 channels, optocouplers, 4.5V to 50V with minimum propagation delay, short circuit protected, galvanic isolation
9. Digital Output channels - 32 channels, push-pull, FET, 5V to 30V, 200ns to 65ns) with minimum propagation delay, short circuit protected, galvanic isolation
10. Analog input channels: (16 channels, 500Ks/s, 16 bits, 2.5us, ±20V), short circuit protected, FPGA based control
11. Analog output channels: (16 channels, 16 bits, 15mA, 1 Ms/s, ±16 V), short circuit protected FPGA based control.
12. Simulator should have following Connectors – JTAG, USB, Ethernet,Synchronization Connectors,DB37 connectors for digital and analog inputs and outputs, DB9 connectors for RS422 differential signal inputs and outputs and Standard ATX computer connectors: mouse and keyboard, USB ports, monitor, external SATA connector, network ports.
13. Simulator should have both CPU Processor as well as FPGA Processor.
14. The Embedded CPU processor should have at least the mentioned or better configuration : 3.2 GHz, Xeon E3 -4 core processor, and must be available off-the-shelf
15. The EmbeddedFPGA processorshould have at least the mentioned or better configuration : Kintex-7 FPGA, 325 T, 326 k logic cells, 840 DSP slice Fast Optical interface
16. Simulator should be capable of Execution of 100 Three Phase bus system in Real Time on a Single Hardware Chassis.
17. Simulator should have a Capability of generating PWM pulses of upto 200 kHz
18. Simulator should be capable of implementingHardware in Loop (HIL) Simulation, Rapid Control Prototyping (RCP) simulation and Model in Loop Simulation Techniques on the same Hardware Chasis
19. Simulator should simulate the Plant as well as controller on the same simulator chasis
20. Simulator should be Capable to simulate customized simulation Models of solar, wind and hybrid systems in addition to conventional power system Models built in MATLAB simulink/Sim Power Systems/Simscape platform) Models could be detailed Wind power plant Models using either DFIG or PMSG / PV Farm Model / Wind Farm Model /Microgrid Model.
21. Simulator should be capable of simulating upto 64 Switches in real time at 40 KHz, 200ns time step on a single hardware chassis
22. Simulator should have the flexibility to choose the simulation time based on the application.
23. Simulator must facilitate the change of parameters on the fly ie during Real time Simulation.

24. Simulator must be capable of Sending up to 16 CT/PT/CVT signals to actual protection relays, PMUs and other Intelligent Electronic Devices (IEDs)
25. Simulator must be capable of Receiving up to 32 status/command signals in the form of digital inputs from external controllers and components
26. Simulator should provide the FPGA simulation time step at any value between 200ns and 2μs and CPU simulation time step at any value between 20us and 200 us.
27. Simulator should simulate a detailed Real Time simulation of multilevel converter (up to 64 switches) in a chassis for medium voltage industrial drives applications/power converters with RE sources (up to 64 switches) with high switching frequency of 40 KHz at 200ns Time step.

B.   HIL Controller Interface, Qty. Required : 01

1. Number of Current Channels- 8
2. Number of Voltage Channels- 8
3. I/O Connector, DB37, 4mm Isolated banana jacks
4. Current Sensor: Input range: 15A, Signal Output Range: ±10V, Isolation: Galvanic, Bandwidth:DC to 100Khz
5. Voltage Sensor: Input range: Up to 600 V, Signal Output: ±10V, Bandwidth: DC to 100Khz
6. Capable of interfacing at least 8 high current and 8 high voltage signals with the real time simulator.
7. Each current channel must be capable of taking at least 15 A.
8. Each voltage channel must be able to handle at least 250 V.
9. It should be compatible with above mentioned Real Time Simulator