## Punjab Engineering College (Deemed to be University) Chandigarh Sector 12, Chandigarh 160012



#### **E-tender Document**

for

### **Purchase of**

Real Time Hardware in Loop Simulator for Microgrid Simulations, Smart Grid, Power Systems simulations including EV-HEV Simulations, Inverter –Converter Simulations, Controller Simulations, Plant Simulations, PHIL Simulations & Renewable Energy Integration Simulations & Studies

#### **SECTION I: INVITATION FOR E - TENDER**

- 1. The Punjab Engineering College (Deemed to be University), Chandigarh invites e-bids from eligible bidders for purchase of Real Time Hardware in Loop Simulator for Microgrid Simulations, Smart Grid, Power Systems simulations including EV-HEV Simulations, Inverter Converter Simulations, Controller Simulations, Plant Simulations, PHIL Simulations & Renewable Energy Integration Simulations & Studies
- 2. Interested eligible Bidders may obtain further information from EED/Computer Centre, Punjab Engineering College (Deemed to be University), Sector 12, Chandigarh 160012, India.
- 3. The bidding document can be downloadable from institute website <a href="http://www.pec.ac.in">http://www.pec.ac.in</a> & Chandigarh administration web site <a href="http://etenders.chd.nic.in">http://etenders.chd.nic.in</a>
- 4. All bids must be accompanied by an EMD as specified in the bid document and must be delivered to the office address mentioned below by the date and time indicated below.
- 5. Bids will be opened in the presence of Bidders' representatives who choose to attend on the specified date and time.

#### TABLE - 1

S.	Name of the Work	EMD	Performance Security
No.			Deposit
1	Purchase of software for Real Time HIL Simulator AS PER TABLE-3 of SECTION III	1,00,000	@ 5% of the value of the contract

#### **TABLE - 2 Time Schedule**

I	Date of publication	
I	Downloading of e-tender document	Start date: 26.11.2019
		End date: 18.12.2019
III	Date of submission of e-tender	Start date: 26.11.2019
		End date: 18.12.2019
IV	Physical submission of EMD	Start date: 26.11.2019
		End date: 18.12.2019
V	Opening of Technical Bid (online) and	Date: 19.12.2019 10:30 AM
	meeting for scrutiny of technical bid and	
	declaring eligible bidders.	
VI	Opening of Financial Bid of only eligible	To be informed after checking eligibility
	technically qualified bidder as determined by	of Bidders
	the Committee.	
VII	Place of opening of bids	Electrical Engg. Deptt/Computer Centre
		Punjab Engineering College (Deemed to
		be University),
		Sector 12, Chandigarh 160012
VIII	Address for communication	Punjab Engineering College (Deemed to
		be University),
		Sector 12, Chandigarh 160012

#### **Important Notes:**

I.	Bidders shall have to submit their bids on-line in Electronic Format with Digital
	Signatures.
	All terms and conditions, instructions to bidder regarding e-tendering process etc.
II.	may kindly be seen from the Detailed Notice Inviting Tender (DNIT) available on
	Chandigarh Administration website (http://etenders.chd.nic.in ) or on the Punjab
	Engineering College (Deemed to be University) institute website ( www.pec.ac.in).
	The bidder has to submit the original documents in physical form such as EMD,
III.	eligibility documents and other desired documents on the date fixed for the same as
	above. The failure will entail summarily rejection of its tender.
	The undersigned reserves the rights to reject or accept any or all tenders without
IV.	assigning any reasons.

Director,

Punjab Engineering College (Deemed to be University), Sector-12, Chandigarh

# PUNJAB ENGINEERING COLLEGE (DEEMED TO BE UNIVERSITY), CHANDIGARH SECTION II TERMS AND CONDITIONS OF CONTRACT

#### 1. Qualifications for Tendering: Tenderers should possess the following qualifications:

The Bidder should be either OEM/Authorized service partner of OEM/OEM Dealer

#### 2. Scope of Work

Software for Electrical Power System Design& Analysis with research and academic lecence as per table 3 of section III

#### 3. Earnest Money Deposit:

- i. Tender have to be accompanied by an Earnest Money Deposit (EMD) of Rs.1,00,000 (Rs. One lakh only) in form of FDR/Demand Draft/Banker Cheque/Bank Guarantee from any commercial Bank in favor of Director, Punjab Engineering College (Deemed to be University) Chandigarh which shall be valid for 45 days beyond final bid validity period. Tender without earnest money shall be considered unresponsive and rejected.
- ii. Performance security @ 5% of the total value of contract will be obtained from the successful bidder awarded the contract in the shape of Fixed Deposited Receipt or bank guarantee from a commercial bank which should be valid for period of 60 days beyond the completion of obligations of the supplier including warranty. Performance security is to be forfeited and credited to the institute in the event of breach of contract obligation by supplier in terms of relevant contract.

#### 4. Opening of tenders:

The PEC will open all bids, in the presence of Bidders' representatives who choose to attend, at 10:30 PM on 19.11.2019 and in the following location:

Computer Centre/Electrical Engg. Deptt Punjab Engineering College (Deemed to be University), Sector 12 Chandigarh 160012

The Bidders' representatives who are present shall sign a register evidencing their attendance. In the event of date of opening of Tender being declared a holiday, the due date of opening of the Tender will be the next working day at the same hours and venue.

5. An affidavit as per specimen enclosed as Annexure – 2.2 of SECTION II should accompany the tender. The tenderer who has been black-listed or his/her tenders have ever been cancelled or any legal proceedings have ever been initiated/pending or any penalty has ever been levied on account of delay or non-completion of supply order by any State/UT/Central Government, his/her tender will be out rightly rejected. A scanned copy of affidavit shall be uploaded online and in physical form along with EMD.

- **6.** The bidder shall submit the covering letter (Annexure 2.1 of SECTION II) duly signed by the authorized signatory.
- 7. The details of EMD specified in the tender documents should be the same as submitted online (scanned copies) otherwise tender will be rejected.
- **8.** The conditional bids shall not be considered and may be rejected out rightly in very first instance.
- **9.** The financial bids through e-tendering of only those bidders shall be opened who will qualify in the technical bid criteria.
- 10. The bidder shall submit Proprietary article certificate of OEM
- 11. The bidder shall submit Rate reasonability certificate to the extent that the rates quoted by the firm are the same and not higher than those quoted with other government, public sector or private organizations during the financial year 2019-20.
- **12.** The bidder shall submit Audited copies of Financial Statements for last three financial years i.e. 2016-17, 2017-18 and 2018-19 and shall submit ITR and also mention about **minimum turnover of 2 crores**.
- 13. The bidder shall submit Self-attested copies of PAN/TAN Card/GST.
- 14. The bidder shall submit Authorization certificate from OEM
- **15.** If firm quotes NIL the bid shall be treated as unresponsive and shall not be considered.

#### ANNEXURE – 2.1

From	
Subject: Submission of Tender for purchase Dear Sir,	
With reference to your above-mentioned notice inviting tenders, I/We a complete Software for Electrical Power System Design& Analyst academic license as per table 3 of section III for Punjab Engineering be University)., Chandigarh.	sis with research and
I/We shall supply the above said item truly and faithfully as set forth the tender document. I/We shall be responsible for all complaints as of any dispute; the decision of the Director, Punjab Engineeri University), Chandigarh shall be final and binding on me/us.	regards to product and in case ing College (Deemed to be
A FDR/DD NoDateddrawn on	
intended for the prescribed amount of Rs. Only	(Rupees
Engineering College (Deemed to be University), Chandigarh, payable earnest money as desired.  I/WE shall have no claim to the refund of earnest money / performant this tender in the event of my/our non-compliance of the contract implemented within the period of validity of my/our tender.  I/We further understand that my/our earnest money shall stand forfes supply of equipment's/service/violation of any term, or if I/We wis stage during the period of validity. My/Our tender shall remain valid the last date prescribed for submission of the tender against the about tender along with terms and conditions with relevant columns and my/our attestation and with each page of the tender paper included conditions signed by me/us (in the capacity of sole owner/general of submitted for your favorable consideration.  I/We have read the terms and conditions carefully and have signed absolute and unqualified acceptance.	nce security prescribed against ct, provided such contract is eited in case of unsatisfactory ithdraw my/our tender at any for a period of 120 days from eve-mentioned notice. My/Our annexure duly filled in under ding the enclosed terms and or special attorney attached) is
Thanking you,	
Place	Yours faithfully,
	Signatures Date with stamp & Full Address

#### **ANNEXURE - 2.2**

(To be furnished on non-judicial stamp paper duly attested by the 1st Class Magistrate or Notary Public)

#### **AFFIDAVIT**

I/We/ M/s_	are registered Company/Ltd
I/We/ M/s Company etc. as per Registration Certificate No	oissued
by having registered office	at
ar	
	reby declare and solemnly affirm that I/We
have not been Black-listed, nor mine/our Tende	•
State/UT/Central Government or any partner or shareho	•
with or has any subsisting interest in the business of m	
ever been initiated/pending or any penalty has ever bee	•
work/service/supply order by any State/UT/Central Gov	ernment or by any authority.
Place:	DEPONENT
D. A. L.	
Dated :	
Verification	
I/We do hereby solemnly declare and affirm that the abo	ove declarations are true and correct to the
best of my knowledge and beliefs. No part of it is false a	and nothing has been concealed therein.
Place :	DEPONENT
A ANGO :	
Dated:	

#### **SECTION III** "Technical Bid"

TABLE 3			
No.	Description	Qty	Delivery
			-
	Real Time hardware in loop Simulator for Microgrid Power Systems simulations including EV-HEV Simula Simulations, Controller Simulations, Plant Simulation Renewable Energy Integration Simulations & Studies	tions, I	nverter -Converter

#### It should contain the following

#### Hardware:-

Chassis: 2U with future provision of addon facility

CPU Core: Intel Xeon E3 4 Core, 3.2 GHz,

FPGA Core:

Analog input card (16 channels, 500 kS/s, 16 bits,  $\pm 20$  V),

Analog output card (16 channels,1MS/s, 16 bits,  $\pm 16$  V,10mA),

Digital input card (32 channels, opto couplers, 4.5 V to 50 V, 40 ns, 3.5 mA),

Digital output card (32 channels, push-pull, 5 V to 30 V, 200 ns to 65 ns,50mA)

#### **Simulator Software:-**

Linus OS with Real-Time Kernel

Intel C++ Compiler

FPGA IP Digital I/O License

RT-LAB 11.x Host/Workstation License - Professional

RT-LAB 11.x Real-Time Target License - Professional

eHS FPGA solver

- 1) It should be Matlab-Simulink interfaced Real Time Simulation Platform using both CPU & FPGA Co-Simulation Technology for Plant & Controller Simulation on a Single Rack Mount Hardware Chasis for Microgrid, Smart Grid, Electric Transportation (EV/HEV), V2G-G2V, Renewable Energy Integration, Power System, Power Electronics, Control Design, Power Quality, Power Statbility etc Applications, Simulations & Studies.
- 2) Its CPU Configuration should be min : Intel Xeon E3, 4 Core CPU, 3.2 GHz.
- Its FPGA Configuration should be min.: Xilinx Kintex7 325T,326000 logic cells,-840 DSP Slice
- 4) Its memory Configuration should be : 8GB RAM, solid state hard Disk 128 GB
- 5) It should have total Four I/O Cards in a Single Chasis 16AI, 16AO, 32DI, 32DO
- 6) Its I/O Cards should be reconfigurable & FPGA Based to minimize latency in ADC, DAC, DI, and DO.
- 7) I/O Cards Configuration is:
- Analog input card (16 channels, 500 kS/s, 16 bits, ±20 V), short circuit protected & FPGA based control
- Analog output card (16 channels, 1MS/s, 16 bits,  $\pm 16$  V, 10mA) short circuit protected &FPGA based control
- Digital input card (32 channels, optocouplers, 4.5 V to 50 V, 40 ns, 3.5mA) with minimum propagation delay, short circuit protection & galvanic isolation

- Digital output card (32 channels, push-pull, 5 V to 30 V, 200 ns to 65 ns, 50mA) with minimum propagation delay, short circuit Protection & galvanic isolation
- 8) It should have Fast optical interface 4 sockets for optional Small Form-factor Pluggable (SFP&SFP+) 1 to 5 Gbits/s optical cable pairs (Rx/Tx)
- 9) It should have Various Connectors which are JTAG, USB, Ethernet Connectors, Synchronization Connectors, DB37 connectors for digital and analog inputs and outputs, DB9 connectors for RS422 differential signal inputs and outputs, Standard ATX computer connectors: mouse and keyboard, USB ports, monitor, external SATA connector, network ports.

#### It should exhibit following capabilities

- Scalable processing, Multi core CPU processing, Multi-processing, FPGA Processing.
- CPU Simulation, FPGA Simulation and CPU + FPGA Co-simulation , Multi rate simulation
- Perform Hardware in Loop (HIL) Simulation, Rapid Control Prototyping (RCP) simulation and Model in Loop Simulation Techniques using the same unit
- Perform Controller Simulation, Plant Simulation and both plant and controller simulation using the same unit.

#### PRE-QUALIFING CRITERIA

FIRST COVER TITLED as "Technical Bid" should contain the Self-attested scanned copies of following with consecutive Sr. No.:-

- 1. Name of the firm/organization & address Contact person name and telephone/ Mob. No./Fax. No./ on letter pad of the company/firm.
- 2. Earnest money deposit as mentioned in Point 16 of SECTION II of this tender document.
- 3. Audited copies of Financial Statements for last two financial years i.e. 2015-16 and 2016-17.
- 4. Self-attested copies of PAN/TAN Card.
- 5. OEM Authorization certificate
- 6. Certificate of acceptance of terms & condition mentioned in Section II of Tender Document.
- 7. Registration Certificate of the company issued by the competent authority
- 8. Affidavit of not being Black Listed (Affidavit as per Annexure 2.2 of SECTION II)
- 9. Covering letter (Annexure 2.1 of SECTION II)
- 10. Proprietary article certificate of OEM
- 11. Rate reasonability certificate to the extent that the rates quoted by the firm are the same and not higher than those quoted with other government, public sector or private organizations during the financial year 2019-20.
- 12. 3 years ITR/ minimum turnover as decided by DPC.
- 13. 3 years experience for supply of same/similar equipment along with PO.

NOTE: All the above mentioned documents should be duly in order and are essential to qualify at Technical Bid Stage.

#### **SECTION IV**

#### FINANCIAL BID

#### SECOND COVER TITLED AS "FINANCIAL BID" CONSIST OF

Financial (Price) Bid for purchase of "Real Time Hardware in Loop Simulator for Microgrid Simulations, Smart Grid, Power Systems simulations including EV-HEV Simulations, Inverter – Converter Simulations, Controller Simulations, Plant Simulations, PHIL Simulations & Renewable Energy Integration Simulations & Studies" for Punjab Engineering College (Deemed to be University), Sector 12, is to be submitted online in excel sheet provided.

#### Notes:

- 1. Rate should be quoted in Indian Rupees only exclusive of Taxes/Levies as per Indian law.
- 2. The Institute is registered with the Deptt. Of Scientific & Industrial Research(DSIR) for purpose of availing custom duty exemption in terms of Govt. Notification no. 51/96-Customs dated 23.07.1996 and Central Excise Duty Exemption in terms of Govt. notification no. 10/97- Central Excise dated 01-03-1997 as amended from time to time.

#### **SECTION VI**

#### **GENERAL TERMS AND CONDITIONS**

#### 1. Clarification of Bidding Documents

A prospective Bidder requiring any clarification of the bidding documents may notify the PEC in writing or by telex or cable or fax at the PEC's mailing address indicated in the Invitation for Bids. The PEC will respond in writing to any request for clarification of the bidding documents which it receives no later than 15 days prior to the deadline for submission of bids prescribed by the PEC.

#### 2. Amendment of Bidding Documents

At any time prior to the deadline for submission of bids, the PEC may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the bidding documents by amendment.

In order to allow prospective bidders reasonable time in which to take the amendment into account in preparing their bids, the PEC, at its discretion, may extend the deadline for the submission of bids.

#### 3. Language of Bid

The bid prepared by the Bidder, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the PEC, shall be written in English language. Supporting documents and printed literature furnished by the Bidder may be in another language provided they are accompanied by an accurate translation of the relevant passages in the English language in which case, for purposes of interpretation of the Bid, the translation shall govern.

#### 4. Period of Validity of Bids

Bids shall remain valid for 120 days after the deadline for submission of bids prescribed by the PEC. A bid valid for a shorter period shall be rejected by the PEC as non-responsive.

#### 5. Warranty

The entire system shall be in warranty (from OEM) for a period of one year from complete commissioning & handing over the system.

#### 6. Payment

Payment for Goods and Services shall be made in Indian Rupees only as follows:

- 1. On Final Acceptance
- 2. 100 percent of the Contract Price shall be paid on the Successful Installation & Training

The Supplier's request(s) for payment shall be made to the PEC in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and the Services performed, and by documents, submitted and upon fulfillment of other obligations stipulated in the contract.

Payment shall be made in Indian Rupees only.

No advance payment will be made. Payment will be released after satisfactory receipt of goods/ material, demonstration/training and installation

#### 8. Documents comprising the Bids

The Bids prepared by the Tenderers shall comprise of following components:

Bid to be furnished as per the format for technical specifications.

Technical literature for each product/service, covering full technical specifications.

Bid prices should be quoted item wise as per format provided in excel sheet only duly signed and complete as per the format.

Maximum educational discount as could be offered should be mentioned.

#### 9. Cost of Tender

The tenderer shall bear all costs associated with the preparation and submission of its Bid, including the cost of presentation for the purpose of clarification of the bid, if so desired by the PEC and the PEC will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the Tendering Process.

#### 10. Others Terms and Conditions

An EMD/ bid security of equipment should be submitted in form of FDR/Demand Draft/Banker Cheque/Bank Guarantee from any commercial Bank in favor of Director, Punjab Engineering College (Deemed to be University) Chandigarh which shall be valid for 45 days beyond final bid validity period. Tender without earnest money shall be considered unresponsive and rejected.

A Performance security @ 5% of the total value of contract will have to be deposited by the successful bidder awarded the supply order in form of Fixed Deposited Receipt or Bank Guarantee from a commercial bank which should be valid for 60 days beyond the completion of warranty/contract period.

Performance Security will be forfeited and credited to the institute (Punjab Engineering College (Deemed to be University), Chandigarh) in the event the supplier does not honour the warranty/contract and other terms and conditions of the tender.

Please quote delivery period also. It should be less than 30 days from the date of supply order. All legal disputes will be subject to Chandigarh Jurisdiction and will be interpreted under Indian Laws.

The Director Punjab Engineering College (Deemed to be University) reserves to himself the right to reject any or all tenders without assigning any reasons.

The firm who has been blacklisted by Centre/State Govt/UT/Boards/Corporations/any government authority/Punjab Engineering College (Deemed to be University) are not eligible for the Tender.

The penalty will be charged @ 0.5% of total cost of equipment per week till the completion of installation, mentioned in the purchase order if delivery date is extended by the PEC.

## All the rates will be FOR, Punjab Engineering College (Deemed to be University), Chandigarh.

The institute being a premier Education and Research Institute funded by Chandigarh Administration, discounts as applicable to Research Institute/Educational Institutes may be provided in the Tender.

The bidders shall not be allowed to change, alter or modify the bids after expiry of the deadlines for the receipts of bids.

In a tender, either Indian agent on behalf of the Principal/(Original Equipment Manufacturer) OEM or Principal/OEM itself can bid but both cannot bid simultaneously for the same tender for the same item/ product.

If an agent bids on behalf of the Principal/OEM, the same agent shall not bid on behalf of another Principal/OEM in the same tender for the same item/ product.

Situation in which EMD/Performance security will stand forfeited if a bidder withdraws its bid during the period of bid validity specified by the bidder on the bid form (SECTION VII), and in case of successful bidder, if the bidder fails to supply the software or to furnish performance security in accordance with the tender.

Bids received after the due date will not be considered.

In case, any free gift scheme / cash scheme is launched by the company same will be offered by the vender to Punjab Engineering College (Deemed to be University), Chandigarh free of cost.

Generally the bid offer will be received /opened on the day as specified in the schedule. If the scheduled date is declared as a holiday, then the tender shall be received / opened on the next working day at the same time.

The institute has been exempted from custom and central excise duty.

Tender validity should be 120 days from the opening of tender.

All the terms and Conditions of this tender document are acceptable to me /us.

Signature of Bidder

#### PERFORMANCE SECURITY FORM

(on Non-Judicial Paper)

#### BANK GUARANTEE BOND FOR PERFORMANCE WARRANTY

Τo The President of India, through the Director Punjab Engineering College (Deemed to be University), Sector-12, Chandigarh-160012 Dear Sir, 1. You, on behalf of President of India, have entered into a contract with reference No. with \_\_\_\_\_ (herewithafterreferredto"asthe contractor") for the development, fabrication and supply of (herein after referred to as stores) for the price and on the terms and conditions contained in the said contract. 2. In accordance with the terms of said contract the Contractor has undertaken to produce a Bank Guarantee for Rs\_\_\_\_\_\_\_being 10% of (Rs\_\_\_\_\_\_) of the total value of the said stores supplied to you for the due fulfilment of its obligations to the President of India for due performance as per the contract during warranty period. 3. In consideration thereof, we happily expressly, irrevocably and unconditionally undertake and guarantee as principal obligors on behalf of the contractor that in the event that the President of India submits a written demand to us that the contractor has not performed according to the contractual obligations included in the said contract, we will pay you on the written demand, without demur and without reference to the contractor any sum up to a maximum amount of Rs. (Rupees. Your demand shall be conclusive evidence to us that such repayment is due under the terms of the said contract. Payment by us to you will be made within (30) days from receipt of your written request making reference to this guarantee and on demand. 4. This guarantee shall not be revoked without your express consent and shall not be affected by your granting any indulgence to the contractor, which shall include but not be limited to postponement from time to time of the exercise the same in any manner at any time and either to forbear or to enforce any covenant continued or implied in the said contract or any other course remedy or security available to you, and our Bank shall not be released from its obligations under this guarantee by your exercising any of your rights with reference to matters aforesaid or any of them or by reason of any other indulgence shown by you or by any other matter or thing whatsoever which under law would, but for this provision, have the effect of relieving our bank from its obligation under this guarantee. Not withstanding anything herein contained, our liability under this guarantee is restricted

to Rs. (Rupees. ).and the guarantee shall remain in force upto and including the day of being reported to us by you returned to us duly

discharged.

	guarantee shall be prescribed and we shall be di	scharge from the liabilities hereunder.
	This guarantee shall not be affected by any of the contractor or for any other reason whatsomer were shall under the contractor or for any other reason whatsomer were shall under the contractor or for any other reason whatsomer was also as a second of the contractor of the contract	pever.
duı	We, Lastly und ring its currency except with the prior consen	t from your office in writing.
No	ot with standing anything contained herein:	
i.	Our liability under this Bank Guarantee (Rupees.	
ii.	This Bank Guarantee shall be valid upto	
iii.	We are liable to pay the guaranteed amo Guarantee only and only if you serve up	unt or any part thereof under this Bank on us a written claim or demand on or before
Branch	This Bank Guarantee shall be returned to our at	Name of the Bank Office Address, once the purpose of the
Origina	ce has been fulfilled or upon expiry of this gu	narantee whichever is earlier. Even return of the guarantee with specific request letter from
Wittne	ess:,Signature_	
Wittne	ess:,Signature_	
For	Bank	ForBank
Author	rized Signatory	Authorized Signatory

6. Unless a demand or claim under this guarantee is made on us in writing on or before the aforesaid expiry date as provided above or unless this guarantee is extended by us all your rights under this