

**Indian Institute of Technology, Delhi**

**Centre for Energy Studies**

**NOTICE INVITING QUOTATION**

Ref: IITD/CES/

Dated: 14/12/2012

Sealed quotations are invited for wind turbine emulator of capacity 2kW having the following capabilities

- Capable of demonstrating the behavior of wind turbine for any feasible sudden change in wind speed and direction in real time made through some software based user interface
- Should exhibit the both transient and steady state characteristics close to real wind turbine
- Should have a software platform which can enable with change in model of wind turbine and also a newly developed wind turbine model can be tested
- Should have a digital hardware system on which default, modified and a newly developed wind turbine model can be executed in REAL TIME
- Real time communication link between Hardware system and the software platform running on any dedicated computer or server
- Software platform should be capable of converting the developed model into machine codes executable by the hardware system
- Digital hardware system should have dedicated processor for complex calculations for different control algorithms as the same time not interfering real time execution of wind turbine model, additionally should have ports for analog voltage sensing & high frequency PWM signals suitable for Power Electronics applications
- Whole system should be capable of demonstrating Hardware-In-Loop simulation concepts
- Wind emulator should be capable of mechanically couple and driving different generators like PMSG, SFIG, DFIG and etc.
- System should be developed with open Gate controls. The system should be flexible to be controlled externally with user defined algorithms.

The Bidder should submit the detailed technical solution for the above system. The bid should contain the detailed technical specifications of the system. The solution should exhibit the step by step process of development of such Wind Turbine emulator.

Please send the sealed quotations to Prof. T.S. Bhatti/Dr. Ashu Verma, Room No.237, Block-V, Centre for Energy Studies, Indian Institute of Technology Delhi, Hauz Khas, New Delhi 110016. Your sealed quotation should reach latest by 5PM on *07/01/2013*.

**1. Wind turbine emulator system (2kW).**

**2. Terms and conditions**

i. Price quoted

The rate quoted must preferably be for free delivery CIF, IIT Delhi after allowing discounts, if any.

ii. Terms of payment

Our normal terms of payments within 30 days after receipt of stores in sound condition by means of cheque or Letter of Credit whichever is applicable.

iii. Director's right

Director reserves the rights of acceptance or rejection of any or all quotations. The discretion for increasing the quantities demanded also vests with him.

iv. Validity of quotation

Quotations will be considered valid for 3 months from the date of receipt unless otherwise stated.

v. Correspondence

No correspondence regarding the acceptance or rejection of a quotation will be entertained.

**vi. Method of submission  
the of<sup>are</sup> quotation**

**Quotation should be sent in a sealed cover marked at top our N.I.Q. REFERENCE and DUE DATE.**

**Quotation should contain separately sealed**

**(i) Commercial bid and**

**(ii) Technical bid**

**Both in one main sealed cover**

vii. Discount/rebates

Special discount/rebate may please be indicated. Keeping in view that item supplied are being made for Educational purpose in respect of Public Institution of National importance.

**viii. Compliance Statement**

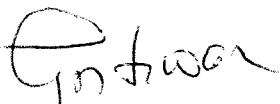
**Compliance statement against tender specifications must be submitted. Quotation not satisfying the same will be rejected.**

ix. Warranty

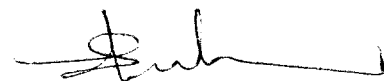
2 year

x. Rejection

Quotation not conforming to the set procedures as described above will be rejected.



Prof. G.N. Tiwari



Dr. K.A. Subramanian



Prof. T.S. Bhatti



Dr. Ashu Verma