



NATIONAL INSTITUTE OF SOLAR ENERGY
An autonomous Institute of Ministry of New & Renewable Energy)
GURGAON

NOTICE INVITING TENDER

Sealed Tenders are invited by office of the Director General, National Institute of Solar Energy in two parts (Technical and Commercial separately) from:

1. The Original manufacturers/authorized suppliers who have past experience of manufacturing, or authorized Indian supplier for **supply and installation of “Class AAA Sun Simulator with built in chamber” with complete accessories at NISE**. A clientele list should also be furnished along with the Technical Bid.
2. The Original manufacturers/authorized suppliers who have past experience of manufacturing, or authorized Indian supplier for **supply & installation “Class AAA Sun Simulator with built-in spectral response measurement on PV” with complete accessories at NISE**. A clientele list should also be furnished along with the Technical Bid.
3. The Original manufacturers/authorized suppliers who have past experience of manufacturing, or authorized Indian supplier whoever have supplied at least 3 systems for **supply & installation of “UV Chamber” with complete accessories at NISE**. A clientele list should also be furnished along with the Technical Bid.

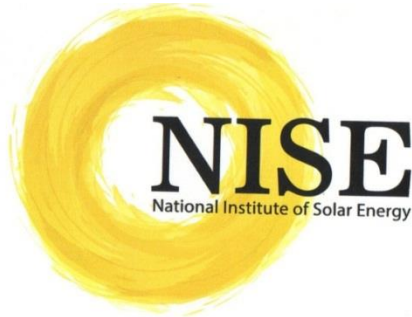
The tender document and detailed technical specifications along with tender terms and conditions may be downloaded from the website of Ministry of New & Renewable Energy or that of the Institute: www.mnre.gov.in or www.nise.res.in.

Sealed tenders may be submitted in two parts i.e. Part-I containing Technical Bid along with Demand Draft for EMD, and Part-II containing only commercial invoice in a separate sealed envelope, super scribed as commercial bid. Both the technical and commercial envelopes should be kept in large size sealed envelope super-scribed as tender for “(name of the tender)” and addressed to: Dr. Rajesh Kumar, Deputy Director General, National Institute of Solar Energy, Gurgaon – Faridabad Road, Gwal Pahari, Gurgaon 122003, Haryana, India. The bidders may submit their tenders by post or by dropping it in the tender drop box located at the reception counter of NISE Gurgaon. Closing time and date for receipt of tenders at NISE is 12PM on 5th February 2016. The date for opening of Technical & Financial bids shall be intimated in due course.

Tender DOCUMENT

For

Supply & Installation of class AAA sun simulator with built-in spectral response measurement on PV module with complete accessories



NIT NO: 01/01(09)/2015/NISE-PVTF

Closing Date: 05/02/2016

At

NATIONAL INSTITUTE OF SOLAR ENERGY

19th Milestone, Institutional Area,

Gurgaon-Faridabad Road, Gwalpahari, Gurgaon, Haryana,

INDIA

Telefax No. : +91-124-2579212

File No: 01/01(09)/2015/NISE-PVTF

National Institute of Solar Energy

**Faridabad-Gurgaon Road
Gwalpahari, Gurgaon-122003 Haryana**

TENDER NOTICE

Subject: Supply & Installation of **class AAA sun simulator with built-in spectral response measurement on PV** with *complete accessories* at National Institute of Solar Energy, Gurgaon.

On behalf Office of Director General, National Institute of Solar Energy sealed tenders are invited from reputed agencies in two parts (Technical and Commercial separately) for supply & installation of class AAA sun simulator with built-in spectral response measurement on PV with complete accessories at National Institute of Solar Energy, Gwal Pahari, Gurgaon, Haryana, India. The important dates and information are given below in the table:

Tender Details

Sl.No.	Description	Details
1	Notice Inviting Bid(NIT) No	<u>01/01(09)/2015/NISE-PVTF</u>
2	Scope of work	Supply, Installation and warranty for min 2 year, of class AAA sun simulator with built-in spectral response measurement on PV with complete accessories at NISE.
3	Sun simulator with built in chamber	As per Technical specification
4	Place of issue & submission of bid document and address for communication # The Envelop should be super scribed as Tender for "class AAA sun simulator with built-in spectral response measurement on PV with complete	NATIONAL INSTITUTE OF SOLAR ENERGY Gurgaon-Faridabad Road, Gwal Pahari, Gurgaon,Haryana-122003, India *Tenders may be dropped in Tender Box located in the old building of NISE Campus*

	accessories ”	
5	Availability of Tender Document	The Tender document can be downloaded from the website of NISE: www.nise.res.in and MNRE: www.mnre.gov.in
6	Last date & time of submission of bid	05/02/2016 at 12.00PM
7	Date & time of opening of Part – I(Technical Bids)	Date & time of opening of technical bids will be intimated to the bidders.
8	Date & time of opening of Part – II (Price-Bid)	Date & time of opening of Commercial bids will be intimated to the bidders.
9	Earnest Money (Refundable)	Rs. 1 Lakh/-
10	Time of supply	Maximum Eight week, after issue of P.O.
11	Validity of offer	The offer will remain valid for 4 months from the date of tender publication date
12	Validity of earnest money	The earnest money shall be submitted by the bidder in the form of CDR/FDR/BG from any bank operations in India pledged to the Director General NISE. This shall remain valid for 12 months from the date of submission of bids.

DETAILED TENDER NOTICE

Name of Work: Supply and Installation of class AAA sun simulator with built-in spectral response measurement on PV with complete accessories at NISE.

1. ELIGIBILITY CRITERIA

1.1 The original manufacturers or their authorized suppliers who have past experience of manufacturing, or authorized Indian supplier. A list of clients should be enclosed.

2. Technical Specifications:

Tender for design development supply installation and commissioning of class AAA sun simulator with built-in spectral response measurement on PV module

Tender Description

Demanded is a fully integrated PSS System including accessible dark-room (cabinet), all necessary hardware and software and turnkey installation in New Delhi, India. The equipment shall be capable to characterize PV modules of different cell technologies according to the following procedures and standards:

Procedure	Referred standards
Module power at standard test conditions	IEC 60904-1 IEC 61215, 10.02 / IEC 61646, 10.2
Spectral Response Measurement	IEC 60904-8
Module power at different levels of irradiance	IEC 61215, 10.7

Flashlight	<p>The PSS System shall meet the following basic characteristics:</p> <p>Non-uniformity* $\leq \pm 1\%$ Spectral mismatch* $\leq \pm 15\%$ Temporal flash instability* $\leq \pm 0.5\%$ *to be calculated acc. to IEC 60904-9, ed. 2</p> <p>Module area: width: $\geq 300\text{cm}$ height: $\geq 300\text{cm}$</p> <p>Pulse duration : 100 ms</p> <p>Irradiance range : 100 – 1200 W/m² ***to be reached through an optical or electronic dimming system</p>
Dark cabinet	<p>The PSS System shall be positioned in a large open laboratory hall. Therefore, the quotation shall include accessible, lightweight construction housing. This housing shall serve as dark cabinet to protect the test specimen from false light. The housing shall also protect the critical and movable parts from dust collection. The operation of the system can be carried out from outside the housing.</p>
Spectral Response Measurement	<p>The device shall allow spectral measurements on PV-modules. Spectral range: 400 nm – 1100 nm Spectral resolution: max. 50 nm</p>
Mounting rack	<p>A module mounting arrangement which serves to fix PV modules easy and fast within the measurement plane.</p>

Module temperature measurement	<p>At least four module temperature sensors (R_{TD}) to be fixed on the modules rear side shall be integrated.</p> <p>The module temperature sensors shall be calibrated. The calibration shall be traceable to a national reference (e.g. DKD) with a max. uncertainty of ± 0.5 °C</p>
Measurement electronics	<p>Min. voltage range: 0 to 400 V*</p> <p>Min. current range: 0 to 20 A*</p> <p>Voltage sweep selectable (Voc – Isc or Isc – Voc)</p> <p>Four-wire technology</p> <p>Active electronic load (at least 3-Quadrant load)</p> <p>Accuracy of I, V and irradiance: 0.1%</p> <p>Input channels for WPVS reference cells (irradiance and temperature) should be available</p> <p>*In order to provide the highest possible resolution for different PV module characteristics, the measurement ranges should be selectable in several steps in order to optimize the resolution for different module technologies (e.g. $\geq 10V$, $\geq 50V$, $\geq 100V$, $\geq 200V$)</p>
Reference cells (monitor cell)	<p>calibrated reference cell for technology cell . Calibration of cell should be from any one of the following</p> <p>NREL USA /JRC ISPRA/ AIST Japan/ Fraunhofer ISE Germany /PTB Germany</p>
PC, monitor, software	<p>'state-of-the-art' measurement computer (PC), (TFT) monitor and pre-installed software which serves to:</p> <ul style="list-style-type: none"> - Operate the whole system, trigger flashes manually, or on customized intervals as well as multi-section measurements - Collect and store all relevant data (I-V, Temp, Irrad, etc) - Conduct irradiance and temperature correction acc. to IEC 60891 or acc. to customers setting and spectral mismatch correction
Turnkey installation, installation site demands	<p>The PSS System shall be installed within an air-conditioned laboratory in India, / New Delhi. Therefore, the quotation shall include all shipping and installation costs. Furthermore, necessary requirements - set by the supplier to the installation site- shall be communicated clearly. This means especially:</p> <ul style="list-style-type: none"> - Floor space demand / height - Electrical supply for the whole system and its different major components - Ambient climate range - Cool water needs
Commissioning and training	<p>The major specifications as listed in the quotation shall be approved after installation. The homogeneity, spectrum and stability shall be approved in accordance to IEC 60904-9.</p> <p>Furthermore, the quotation shall include an operation training program(operation, software etc.), which should take place after the</p>

	commissioning.
Control and maintenance visit	The quotation shall include control and maintenance visits which take place on arrangement after the approval. This point should be offered as option.
Warranty and Support	The warranty and support conditions shall be stated in the quotation. For non-wear parts a warranty time of at least 2 years is expected. For the flashlight a lifetime of at least 50 000 flashes is expected. Furthermore at least one set of spare flashlight bulbs shall be provided.

3. **EARNEST MONEY DEPOSIT (EMD)**

A sum of Rs.1 lakh/- should be submitted as Earnest Money Deposit (EMD) **along with the technical bid** in the form of **bank demand draft/Bank Guarantee** drawn in favor of “National Institute of Solar Energy” and payable at Gurgaon, Haryana”. The EMD of the accepted tender will be retained as Security Deposit and the EMD of other unsuccessful bidders would be returned.

4. **RATES:**

The rates should be quoted specifically on the following lines:

- a. Firm and final cost of the **class AAA sun simulator with built-in spectral response measurement** on PV *with complete* accessories as per the above specifications and features along with costs of the installation charges as per the above specifications and features should be provided.
- b. Taxes and freight etc. if any applicable should be indicated separately and clearly.

5. **DELIVERY PERIOD:** **class AAA sun simulator with built-in spectral response measurement** on PV with complete accessories should be delivered in a single consignment at the site/consignee within 6 to 8 weeks from the date of issue of confirmed supply order.

6. **INSPECTION:** The supplier should satisfy himself/herself that class AAA sun simulator with built-in spectral response measurement on PV at NISE is as per the above specifications and features along with options, accessories, conform to the specifications by carrying out complete pre-inspection of each component before dispatch.

7. **CONSIGNEE:** Director (SPV)/ Store Keeper, National Institute of Solar Energy, Ministry of New and Renewable Energy, Gwal Pahari, Gurgaon, 122003 Haryana, India.
8. **GUARANTEE/WARRANTY:** Measuring instruments supplied should be covered by standard terms of warranty for a period of min 24 months from the date of installation.
9. **PENALTY:**
- i. The supplier shall supply the stores in accordance with the particulars as expressly specified at the time/times and at the place/places only.
 - ii. The time for and the date of the stores stipulated shall be deemed to be the essence of the supply/work order.
 - iii. If for any reasons the contractor is unable to adhere to the contract delivery dates, he may seek extension in delivery/completion dates well in time by sending a request in writing in this regard to the office issuing the contract/supply order. The purchaser reserves the right to allow the extension of delivery period subject to such conditions as he may think fit. However, the decision of the purchaser shall be final and binding.
10. **DISPUTES:** In case of any dispute the decision of the Director General, National Institute of Solar Energy will be final and binding on both parties. Further dispute, if any will be settled in the Court of Law at New Delhi jurisdiction only.
11. **VALIDITY:** The Tenders should be valid for 180 days from the date of opening.
12. **REJECTION:** Incomplete, conditional, fax, late tenders and tenders without EMD will be rejected summarily. Director General, National Institute of Solar Energy reserves the right to reject any or all the tenders at his discretion without assigning any reason thereafter.
13. **SUBMISSION OF TENDERS :** Sealed tenders are to be submitted in two parts i.e. **Part-I containing Technical competence/literature along with Demand Draft for EMD, and Part-II containing only commercial invoice in a separate sealed envelope, super scribed as commercial bid.** Both the technical and commercial envelopes should be kept in large size sealed envelope super-scribed **class AAA sun**

simulator with built-in spectral response measurement on PV with complete accessories at NISE and addressed to: Director (SPV), National Institute of Solar Energy, Gurgaon – Faridabad Road, Gwal Pahari, Gurgaon 122003, Haryana, India.