



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 “UV Chamber” Supplies with complete accessories



NIT NO: 01/05(01)/2015/NISE-PVTF

Closing Date: 05/02/2016

At

NATIONAL INSTITUTE OF SOLAR ENERGY

19th Milestone, Institutional Area,

Gurgaon-Faridabad Road, Gwal Pahari, Gurgaon, Haryana,

INDIA

Telefax No. : +91-124- 2579212

File No: 01/05(01)/2015/NISE-PVTF

National Institute of Solar Energy

**Faridabad-Gurgaon Road
Gwal Pahari, Gurgaon-122003 Haryana**

TENDER NOTICE

Subject: Supply & Installation of “UV Chamber” 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 **“UV Chamber” 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>01/05(01)/2015/NISE-PVTF</u> |
| 2 | Scope of work | Supply, Installation and warranty for min 1 year after commissioning, of “UV Chamber” with complete accessories at NISE. |
| 3 | “UV Chamber” | As Per Standards IEC 61215/61646:2005, IEC 61345. |
| 4 | Place of submission of bid document and address for communication # The Envelop should be super scribed as Tender for “UV Chamber” | 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* |
| 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 six 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 “*UV Chamber*” 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 whoever have supplied at Least 3 systems. A list of clients should be enclosed.

2. Technical Specifications:

SPECIFICATIONS OF UV CHAMBER

| SL No | PARAMETERS | SPECIFICATIONS |
|-------|--------------------------------|--|
| 1. | Test sample Area | Approx 3mx3mx8cm |
| 2. | Temp Range | 25-75°C |
| 3. | Temperature uniformity | ±2°C |
| 4. | UV Lamp/tube | As Per Standards IEC 61215/61646:2005, IEC 61345 |
| 5. | UV radiation non uniformity | ±15% over the test plane |
| 6. | UV radiometer | should measure UV-A, UV-B (280nm to 400nm) |
| 7. | UV integrator | Should indicate measured UV irradiance on the test plane for UV-A, UV-B in W/m ² |
| 8. | Module temperature measurement | At least four module temperature sensors (R _{TD}) for monitoring module rear side. |

| | | |
|-----|--|--|
| | | The module temperature sensors shall be calibrated. The calibration shall be traceable to a national reference with a max. uncertainty of ± 0.5 °C |
| 9. | Control Panel and Programming | Touch Screen / interface with laptop & Software for monitoring, data-logging and Trend Graphs. |
| 10. | Acoustic alarm | In case of any error/warning . |
| 11. | Electricity Supply | 1-phase 230V \pm 10% or 3-phase 440V \pm 10%, Frequency: 50Hz (Automatically Resume the test when there is power-cut) |
| 12. | Additional spares parts for at least 1 year with Warranty. | Shall be provided |
| 13. | Calibration certificate | From any national/international accredited body. |
| 14. | Safety Protection | <ol style="list-style-type: none"> 1. Reverse phase sequence protection for three phase 2. Shock proof body 3. Emergency stop 4. Door Interlock 5. Temperature Protection 6. UV protected glass window |

Chamber Construction:

The chamber should be able to accommodate a module of 3mx3mx8cm with at least four temperature sensors and UV radiometer which can measure UV-A and UV-B. Chamber should work at an ambient temperature at approx 50°C.

Test Area :(optional)

Preferably rack mounted with three individual test plane 2.5m x 1.25m x 8cm as height x width x depth respectively

Components of Chamber:

UV Lamp:

A UV light source capable of producing UV irradiation with an irradiance uniformity of ± 15 % over the test plane of the module(s) with no appreciable irradiance at wavelengths below 280 nm and capable of providing the necessary irradiation in the different spectral regions, Assuring that at wavelengths between 280 nm and 385 nm which does not exceed 250 W·m⁻² (i.e. about five times the natural sunlight level) and that it has a uniformity of ± 15 % over the test plane.

UV light produced by the UV light source at the test plane of the module(s), within the wavelength ranges of 280 nm to 320 nm and 320 nm to 385 nm with an uncertainty of $\pm 15\%$, while maintaining the module temperature within the prescribed range. Should follow the standard IEC 61345. The intensity of the UV lamp should be adjustable from 150- 250W/m².

Temperature control:

The temperature should be controlled (programmable) in the range of 25-75°C.

Four temperature sensors, capable to measure the test apparatus with $\pm 0.5\%$ accuracy. The Equipment must be capable of maintaining the module temperature at 60 °C ± 2 °C while module is irradiated by UV light.

Module temperature measurement:

At least four module temperature sensors (R_{TD}) for monitoring module rear side, with a max. Uncertainty of ± 0.5 °C

UV Radiometer:

UV Radiometer which is capable of measuring both UV-A and UV-B within the prescribed wavelengths. High precision radiometer of internationally prominent suppliers like EPPLY, Kipp& Zonnen or EKO should be used. The calibration of radiometer should be traceable to world radiation standard(WRS).

UV Integrator:

Should indicate measured UV irradiance on the test plane for UV-A, UV-B in W/m² individually, with a least count of ≥ 0.001 .

Calibration certificate:

Calibration certificate must be provided on the date of installation and commissioning for the UV radiometer, temperature sensors (R_{TD}) from any national/international accredited body.

Control and Operational Elements:

Control & Programming: Chamber should have measuring and control system. Chamber should have either the Touch display/ Interface with computer (Preferably laptop) to check the operation of the chamber. There should be provision to monitor actual temperature and humidity in the unit. Function keys should be available for direct switching ON and OFF of testing and test chamber lighting. It should have alarm display and acoustic alarm. Set points and actual values should be recorded in provided memory console. It should also include the facility of trend graph and data logging. All the functions should be adjustable and monitored with the user interface. Memory Capacity shall be provided to store the programmed data.

Testing Conditions:

AS per standards: IEC 61215:2005/61646 and IEC 61345.

Safety Considerations:

Electrical safety: Chamber should have complete set of electrical section with fuses protection, switch-control, and regulation appliances as well as operation, monitoring and alarm elements. Each functional circuit is equipped with its own safety device and in the event of trouble, turns off the affected circuit or entire chamber. Wiring and electrics should be governed by the latest technology and strictly conform to safety regulations for electrical installations and materials as well as to relevant regulations.

Temperature Safety: Chamber should have protection for heaters by a safety thermostat with an additional temperature limiter. Safety thermostat with restart locking should switch-off the entire chamber in case of failures.

Training, Installation and Commissioning:

1. Operation & Maintenance training should be provided at NISE Campus after commissioning.
2. Installation & Commissioning should be at NISE Campus.

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 “*UV Chamber*” 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: “*UV Chamber*” 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 “*UV Chamber*” with **complete accessories** 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 min12 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 whatsoever.

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 "*UV Chamber*" at NISE and addressed to: Director (SPV), National Institute of Solar Energy, Gurgaon – Faridabad Road, Gwal Pahari, Gurgaon 122003, Haryana, India.