

E-Tender Document

for

Supply, Installation and Commissioning of a Solar Cell IV cum LIR tester at the National Institute of Solar Energy on the basis of International Competitive Bidding



NIT NO: Rand D-201/1/2021-SDD Part B

Bids to be submitted online by (IST) 17:00 hours on or before 29th May, 2023

through the website: <https://nise.ewizard.in>

**NATIONAL INSTITUTE OF SOLAR ENERGY
(An autonomous Institute of Ministry of New & Renewable Energy, Govt. of India)
Gurugram-Faridabad Road, Gwal Pahari, Gurugram, Haryana-122003, INDIA
Contact Telephone No.: +91-124- 2853111/2853002/2853008
Website: www.nise.res.in**

National Institute of Solar Energy
(An Autonomous Institute of Ministry of New & Renewable Energy, Govt. of India)
Gurugram-Faridabad Road, Gwal Pahari, Gurugram - 122 003; Haryana

On behalf of the Director General of the National Institute of Solar Energy (NISE), (An Autonomous Institute of Ministry of New & Renewable Energy [MNRE], Govt. of India [GoI]), Gurugram-Faridabad Road, Gwal Pahari, Gurugram - 122003; Haryana, India e-tenders are invited from reputed national and international Manufacturer(s)/ Supplier(s) for **Supply, Installation and Commissioning of a Solar Cell IV cum LIR tester** as per the specifications mentioned in technical section(s) Annexure 1 in the tender document.

Notice Inviting Bid (NIT) No	Rand D-201/1/2021-SDD Part B
Scope of Work	Supply, Installation and Commissioning of a Solar cell IV cum LIR tester at NISE Campus
Supply, Installation and Commissioning	As per the Technical specification at Annexure 1
Submitting of Tenders	<p>1. The scopes of work to be tendered are available in the complete bid documents which can be viewed /downloaded from e-tender portal of https://nise.ewizard.in and Central Procurement Portal (CPP) (i.e. https://eprocure.gov.in). Both Technical Bid and Financial Bid will be submitted concurrently duly digitally signed in the website https://nise.ewizard.in . No claim shall be entertained on account of disruptions of internet service being used by bidders. Bidders are advised to upload their bids well in advance to avoid last minute technical snags.</p> <p>2. All Corrigendum/Amendment/Corrections, if any, will be published on the website https://nise.ewizard.in .</p> <p>3. It is mandatory for all the applicants to have Class-III Digital Signature Certificate (in the name of person who will sign the bid document) from any of the licensed certifying.</p>

	<p>4. To participate in the e-tendering submission, it is mandatory for the applicants to get registered their firm/joint venture with the e-tendering portal of https://nise.ewizard.in to have user ID & Password from M/s ITI Ltd.</p> <p>5. A bidder can apply for either Part A (IV Tester) and Part B (LIR Tester) together or only for Part C (IV cum LIR Tester).</p> <p>Note: It is mandatory for bidders who are applying for Part A to apply for Part B. Similarly, if one is applying for Part B, it is mandatory for the bidder to apply for Part A.</p> <p>Part C can be applied alone.</p>
Bid Validity	Bids shall be valid for at least 180 days from the date of Technical bid opening. However, in case NISE requires further validity extension due to some unforeseen conditions, the same should be extended at the same price, terms & conditions as quoted in the original offers on the request of NISE.
Earnest Money Deposit (EMD)	An EMD of ₹ 3,00,000/- (Rupees Three Lakh Only) (refundable to the unsuccessful Bidders without any interest) has to be submitted through online, as the mode available on the portal. MSME bidders are exempted from submitting the EMD, however, a bid security declaration should be provided

Security/ Performance Guarantee	The successful bidder within 15 days from the date of receipt of Purchase Order should deposit 3% of the contract value in form of Demand Draft / FDR / Bank Guarantee from a commercial bank in India as a Security/ performance Guarantee valid for a period of 60 days beyond the warranty and extended warranty period.
Delivery time	Within 16 weeks from the date of LC opening.
Last date for submission of bids	To be submitted online by (time) 17:00 hours Indian Standard Time (IST) on 29th May, 2023 (Note : In case this date is declared as a holiday by NISE or Govt. of India in future, then the next working day shall be the last date for submission of Bids)
Pre-Bid Meeting	To be held on 24.04.2023 online at 11:00 a.m.. Bidders may attend the same on the above date for clarification of doubts if any. Vendors interested in attending the pre-bid meeting shall send their detailed contact id and comments on the technical specifications, if any, to duttamrinal@nise.res.in on or before 21.04.2023 . Further details of the meeting will be communicated thereafter through e-mail. Based on the discussion during the pre-bid meeting, NISE reserves the right to issue an amendment for this tender.
Date of opening of Technical bids	30th May, 2023 at 15:00 Hrs
Opening of Price Bids	The time & date for opening of the price bids will be intimated to the technically qualified Bidders. Financial bids should be evaluated based on the price of basic equipment only leaving the optional items. Bidders who are applying for Part A and Part B have to provide financial bid for Part A and Part B both. Bidders who are applying for Part C have to provide financial bid for Part C only.
Address for Communication	The Deputy Director (Tech.) National Institute of Solar Energy Gurugram - Faridabad Road, GwalPahari, Gurugram - 122 003, Haryana, India. Email: duttamrinal@nise.res.in Ph: +91 124-285 3111

1. **INSTRUCTIONS TO BIDDERS**

The following **KEY INSTRUCTIONS** for **BIDDERS** must be assiduously adhered to:

1. Bidders/Vendors/Suppliers/Contractors must get themselves registered on the portal for participating in the e-tenders published on <https://NISE.ewizard.in> by paying the charges of Rs. 2000/- (exclusive taxes) per year.

2. Bidders must provide the details of PAN number; registration details etc. as applicable and submit the related documents. The user id will be activated only after submission of complete details. The activation process will take minimum 24 working hour's eprochelpdesk.100@gmail.com

3. Bidders must have a valid email id and mobile number.

4. Bidders are required to obtain Class 3 Digital Certificates (Signing & Encryption) as per their company details.

5. Once bidder DSC is mapped with the user id, the same DSC must not be used for another user id on the same portal. However bidder can update the digital certificate to another user id after unmapping it from the exiting user id.

6. Bidders now can login with the activated user Id & DSC for online tender submission process in this portal.

7. Bidders can upload required documents for the tender well in advance under My Documents and these documents can be attached to the tender during tender participation as per the tender requirements. This will save the bid submission duration/time period and reduce upload time of bid documents.

8. Bidders must go through the downloaded tender documents and prepare and upload bid documents as per the requirements of the department.

9. Once the bidders have selected the tenders they are interested in, Bidders will pay the processing fee as per portal norms including GST/- (NOT REFUNDABLE) by net-banking / Debit / Credit card then Bidder may download the Bid documents etc. Once Bidders will pay both fee tenders

status will be shown "form received". This would enable the e- tender Portal to intimate the bidders through e-mail in case there is any corrigendum issued to the tender document.

10. Bidders are advised to read complete BoQ/SoQ/Price Bid/Financial Bid and Terms & Conditions before quoting rates in the bid document.
11. Any modification/replacement in BoQ/SoQ/Price Bid/Financial bid template is not allowed. Bidders must quote only in predefined fields in the bid sheet and save the bid sheet. After saving, the same bid sheet must be uploaded in the portal.
12. Bidders must pay required payments (Tender fee, EMD, Tender Processing Fee etc.) as mentioned in the tender document, before submitting the bid.
13. Bidders are recommended to use PDF files for uploading the documents. Only price bid sheet will be in Excel format.
14. The bidders must ensure to get themselves registered on the portal at least 1 week before the tender submission date and get trained on the online tender submission process. For tender submission and registration process bidders are advised to refer respective manuals on website. Tender inviting Authority/Department will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders due to local issues like internet connectivity/PC speed/etc...
15. Offline Submission of bids/documents/rates by the bidders will not be accepted by the department, under any circumstance.
16. After final submission of the bid, a confirmation message and bid submission acknowledgement will be generated by the portal. The bid submission acknowledgement contains details of all documents submitted along with bid summary, token number, date & time of submission of the bid and other relevant details. Bidder can keep print of the bid submission acknowledgement.
17. If bidder is resubmitting the bid, bidder must confirm existence of all the required documents, financial bid and again submit the bid. Once submitted, the bid will be updated.

18. Submission of the bid means that the bid is saved online; but system does not confirm correctness of the bid. Correctness of the bid will be decided by tender inviting authority only.
19. The time displayed in the server is IST(GMT 5:30) and same will be considered for all the tendering activities. Bidders must consider the server time for submission of bids.
20. Bid documents being entered by the Bidders/Vendors/Contractors will be encrypted at the client end and the software uses PKI encryption techniques to ensure security/secretcy of the data. The submitted bid documents/data become readable only after tender opening by the authorized individual.

Technical Support - Tel: 011-49606060

Email ID – ewizardhelpdesk@gmail.com

1. Eligibility of Bidders

- (i) Only those manufacturers who have adequate exposure and experience in the designing/manufacturing/maintenance/support of such equipment need to quote.
- (ii) Assembled/Refurbished/Prototype versions are not acceptable; only proven machines are to be quoted.
- (iii) If the bid has been made by an Agent (other than the manufacturer), an authorization certificate having full address details from the manufacturer in this connection should be submitted mandatorily along with the technical bid.
- (iv) The Bidders shall provide the details of Service Centers located in India and information on available Service support facilities.
- (v) The Bidder shall be equipped to carry out repair and maintenance on behalf of the Manufacturer and meet the inventory requirements.
- (vi) The bidder should submit about their company details as per the format given at Annexure-2.
- (vii) The bidder should mandatorily provide a list of their existing customer base in India/worldwide (with their full contact details such as name, telephone number, fax and email etc.) for the same system supplied, installed and operational in last 5 years as per the format given at Annexure-3.
- (viii) Bidders should submit their price bid as per format provided at Annexure-4.
- (ix) Bidders who do not meet the criteria given above or make untrue or false representation, statements and attachments submitted in proof of the qualification requirements or have a

record of poor performance, do not properly complete the contract, because inordinate delays in completion or financial failure are subject to disqualification.

- (x) All Bidders will undergo a strict scrutiny process for evaluation. Submission of the bid alone does not guarantee the award of Purchase Order to the Bidder.
- (xi) Annual Maintenance Contract (AMC) /Extended Warranty: To ensure trouble-free operation (and including break down) of the equipment for 2 years after the expiry of the warranty period shall be quoted separately.
- (xii) In case an Indian Counterpart of the foreign manufacturer submits offer on their letter head on behalf of the foreign manufacturer in foreign currency, such offer should essentially contain the specific authorization from the foreign manufacturer authorizing on their behalf that they will execute the order in line with the prices quoted and to terms & conditions agreed by the Indian counterpart.
- (xiii) Bidders to note that offers received from Indian Counterparts (on behalf of the manufacturer) in Indian Rupees for the products manufactured by their foreign principal abroad will be rejected outrightly and no further opportunity will be extended for revising such offers.
- (xiv) NISE reserves the right to accept or reject any tender in part or full without assigning any reason whatsoever. NISE also reserves its right not to accept the lowest rates quoted by the tenderers and also to split the order as per our requirement.
- (xv) "The bidders to Confirm:
 - a) that their company is not engaging child labour and is complying with various legislations as applicable from time to time as per the various labour laws/ statutes of the land applicable to them with regard to engagement of child labour.
 - b) Unconditional acceptance that any bidder making a false claim would have its contract terminated forthwith, if detected later."
- (xvi) NISE will not accept any tender documents sent by the post/courier etc. Online submission is mandatory and NISE will not be responsible for delay, loss or non- receipt of tender documents sent by the post/courier etc.
- (xvii) Negotiations will not be conducted with the bidders as a matter of routine. However, NISE reserves the right to conduct negotiations.
- (xviii) Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority (Registration Committee as constituted by Department of Promotion of Industry and Internal Trade) and should submit a valid registration Certificate. (Please refer to Order no.6/18/2019-PPD dated 23 July 2020 and any amendments thereon).
"Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint

venture (that is an association of several persons, or firms or companies), every artificial judicial person not falling in any of the descriptions of bidder stated hereinbefore, including any agency branch or Officer controlled by such person, participating in a procurement process.

"Bidder from a country which shares a land border with India" for the purpose of this order means:

- I. An entity incorporated, established or registered in such a country; or
- II. A subsidiary of an entity incorporated, established or registered in such a country; or
- III. An entity substantially controlled through entities incorporated, established or registered in such a country; or
- IV. An entity whose beneficial owner is situated in such a country; or
- V. An Indian (or other) agent of such an entity; or
- VI. A natural person who is a citizen of such a country; or
- VII. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above
- VIII. The beneficial owner for the purpose of above will be as under
 - a. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more judicial person, has a controlling ownership interest or who exercise control through other means.

Explanation -

- a) "Controlling ownership interest" means ownership of a or entitlement to more than twenty-five percent of shares or capital or profits of the company.

Self-certification should be submitted as per the Order no.6/18/2019-PPD dated 23 July 2020. A model certificate format is attached in Annexure 7.

2) Technical Specifications

Please refer Annexure –1 for Technical Specifications of Supply, Installation and Commissioning of a Solar cell I-V cum LIR tester In case of any deviation, please spell them out in your bid under the heading "Deviation to Technical Specifications".

3) GENERAL CONDITIONS OF CONTRACT

1. **Pre-dispatch inspection:** The Purchaser may depute its scientists/ engineers at its own cost to the Manufacturer premises for carrying out the factory acceptance test using calibrated samples of the equipment prior to its dispatch to the Purchaser's premises.
2. **Certificate:** The Bidder shall furnish, at its own cost, test certificate for standard material. Such certificate shall be from the Manufacturer for the particular consignment and shall be duly authenticated.
3. **Packing:** The Manufacturer/ 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 with stand, 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 take into

consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

4. **Delivery and Documentation:** Delivery of the goods at **National Institute of Solar Energy, Gurugram–Faridabad Road, Gwal Pahari, Gurugram – 122 003, Haryana, India** should be made within 16 weeks from date of opening of LC. The Manufacturer/Supplier shall mail the following documents to the purchaser with copy to the insurance company within 24 hours of shipment:
 - i) Copies of the Manufacturer/Supplier's invoice showing contract number, goods' description, quantity, unit price and total amount;
 - ii) Acknowledgment of receipt of goods from the consignee(s) by the transporters;
 - iii) Insurance certificate, if any.
 - iv) Manufacturer's warranty certificate;
 - v) Inspection Certificate issued by the Competent Authority, and the Manufacturer/Supplier's factory inspection report; and Certificate of Country of Origin before shipping of the equipment.
 - vi) Two copies of the packing list identifying the contents of each package.

5. **Insurance:** For delivery of goods at the purchaser's premises, the insurance shall be obtained by the Manufacturer/Supplier to an amount equal to 110% of the value of the goods from "warehouse to warehouse" (final destination i.e. NISE, Gurugram) on "All Risks" basis including War Risks and Strikes.

6. **Transportation:** The Manufacturer/Supplier is required under the Contract to transport the Goods from "warehouse to warehouse" (final destination i.e. NISE, Gurugram) and the related cost including insurance shall be included in the Contract Price. [Foreign Manufacturers should indicate the FOB (Freight on Board) price & CIF (Cost, Insurance and Freight) price to New Delhi (Indira Gandhi International Airport) / Tughlakabad (DryPort) separately in their offer].

7. **Warranty:** The Bidder must provide full comprehensive warranty for a period of **12 months post installation**, including its integration with the existing facility at project site. During this period, they should provide all spare parts required for repair and maintenance. The commissioning certificate would be jointly signed by the purchaser and the Manufacturer/Supplier. During this period, they should provide all spare parts required for repair and maintenance including visit by the engineer(s) of the Manufacturer/Supplier to the project site and expenditure for boarding and lodging during such visit, if required. Along with repair maintenance service within 12 hours of communication of such services, warranty of 01 year from the date of commissioning against manufacturing defects shall be provided. Warranty should be provided by the original Manufacturer.

8. **Security/ Performance Guarantee:** The successful bidder within 15 days from the date of receipt of the Purchase Order should deposit 3% of contract value in form of a Demand Draft/ bank guarantee from a commercial bank in India as a Security/ performance Guarantee valid for a period of 60 days beyond the warranty period as per the format given at **Annexure-6**. The Performance Bank Guarantee shall be submitted by the successful bidder within 15 days from the date of receipt of Purchase Order.
9. **Extended Warranty (optional):** The Bidder must quote the extended warranty for 01 years. This extended warranty will start after the completion of 01 years regular warranty period from the date of commissioning of the equipment. During this period they should provide all spare parts required for repair and maintenance. **The Bidders who do not quote for Extended Warranty shall not be considered for bid evaluation.**
10. **Payment:** 90% through Letter of Credit against bank documents. All expenses towards this outside India will be in the scope of the Bidder. Remaining 10% shall be payable after testing & commissioning and acceptance of the system /equipment to the entire satisfaction of the Purchaser.
- i. Original Invoice shall be submitted at the time of delivery of goods. Please note that the supplier must mention NISE GST No. and NISE address in their Invoice.
 - ii. Shipping Documents.
 - iii. Photographs of Shipping of the system.
 - iv. Pre-dispatch inspection report from the supplier and inspection report from buyer.
 - v. Submission of all Guarantee / Warranty of the complete system.
 - vi. Calibration certificates where ever applicable as per tender document.
 - vii. Packing list identifying the contents of each package.
 - viii. Copy of Insurance certificate.
 - ix. Any other document requested by the buyer.
11. **Taxes and Duties:** Manufacturer/Supplier shall be entirely responsible for all taxes, GST, license fees, Custom duty (NISE shall provide only Customs duty exemption and concessional GST exemption certificate), all other duties, demurrage charges (if any), road permits, etc., incurred until delivery of the contracted Goods at the Purchaser's premises i.e. NISE, Gurugram. In this respect, the bidders must ascertain all their doubts, if any, from NISE before submission of their bid.
12. **Customs Duties and clearing charges:** Applicable as per Notification No.51/96- customs dated 23rd July 1996 (as amended by Notification No. 28/2003 dated 01.03.2003 & Notification No. 43/2017 dated 30.06.2017) and as amended from time to time for research purpose only. NISE is entitled to availing Customs Duty exemption as well as concessional GST at present, as per NISE Registration with Department of Scientific and Industrial Research (DSIR) of Govt. of India; Regn. No. TU/V/RG-CDE (1096) /2017 dated 23.8.2018

valid up to 31.08.2022, wherever applicable. The said certified DSIR certificate issued to NISE as well as other necessary certificates shall be provided as per rules at an appropriate time. The bare minimum Customs Duty (if any) shall be reimbursed or paid by NISE as per actuals. However, all customs clearance charges (including Agent charges) shall be part of the price bid.

13. **Liquidated Damage:** If the Manufacturer/Supplier fails to deliver the Goods or to perform the Services within the period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct half percent of contract price per week of delay subject to a ceiling of 5% of final contract price.
14. **Applicable Law:** The Contract shall be interpreted according to the laws of the Union of India and all disputes shall be subject to the place of jurisdiction in Gurugram, Haryana.
15. **FREE MAINTENANCE AND DEFECT LIABILITY PERIOD DURING WARRANTY:** The Bidder/ Original Equipment Manufacturer (OEM) shall ensure the following free maintenance services during the warranty period.
 - i. Emergency call back service
 - ii. Inspect, clean, where necessary
 - iii. Adjustment of machinery
 - iv. Replacement of any defective parts
 - v. Any other necessary works for equipment functional operation.
16. **Evaluation of Tenders:** Each point in the technical compliance statement must be adequately supported by technical documentary proof. Mere statement of “complied with” without proper reference shall not be acceptable. Financial bid shall be evaluated based on CIF, NISE, Gurugram inclusive of all charges mentioned at serial no. 5, 6 & 11 of **GENERAL CONDITIONS OF CONTRACT along with** the charges for Annual Maintenance Contract (EXTENDED WARRANTY) for a 2 year period after the regular warranty period of 12 months.
17. Domestic manufacturer/Vendor/Supplier are also encouraged to participate in this e-tender subject to fulfilling all the Terms and Conditions laid down in the tender document.
18. **Amendment:** NISE reserves the right, without being liable for any damages or obligation to inform the applicant, to amend the scope and requirements to reject any or all of the applications without assigning any reasons.
19. **Rejection of Tender:**

The Bidders/Vendors will be subject to disqualification if they do not meet the criteria given above or if they have made an untrue or false representation in the forms, statements, and attachments submitted in proof of the qualification requirements or have a record of poor performance of not properly completing the contract, causing inordinate delays in completion or having financial failures etc.

Vendors should submit the client lists for similar supplied systems; accordingly, NISE may take feedback from the client. In case of unsatisfactory feedback, NISE reserves the right to disqualify the vendor.

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.

The Director General
National Institute of Solar Energy
Gurugram-Faridabad Road
Gwal Pahari, Gurugram – 122 003
Haryana, India

A bidder can apply for either Part A (IV Tester) and Part B (LIR Tester) together or only for Part C (IV cum LIR Tester).

Note: It is mandatory for bidders who are applying for Part A to apply for Part B. Similarly, if one is applying for Part B, it is mandatory for the bidder to apply for Part A.

Part C can be applied alone.

Part A

Technical Specifications of the Solar cell I-V tester to be Supplied, Installed and Commissioned at NISE Gurugram.

S. No	Item		Sub-item	Details
1.	Basic function(s)	a	Application	1. Light and dark I-V testing of 192 mm x 192 mm c-Si solar cells 2. Light I-V testing of 20 cm x 20 cm single-cell modules
2.	Solar Simulator	a.	Lamp type	Ozone-free, Xe short arc lamp, continuous illumination
		b.	Min. area of uniform illumination	220 mm x 220 mm
		c.	Wavelength range (nm)	300 – 1800
		d.	Spectral match (%)	class AAA-as per the latest IEC 60904-9 standard
		e.	Half angle of collimation	$< \pm 3^\circ$
		f.	Filters	Suitable for AM1.5 G spectrum

		g.	Spatial non-uniformity of irradiance	$< \pm 1.5\%$ (at 1 SUN)
		h.	Temporal instability for STI and LTI	$< \pm 0.5\%$ and $< \pm 2\%$.
		i.	Max. and Min. intensity	Variable intensity from 0.9 Sun (or lower) to 1.5 Sun without changing spectrum
		j.	Input power for lamp supply	Single-phase or three-phase, $230 \pm 10\%$ VAC or $415 \pm 10\%$ VAC, 50-60 Hz
		k.	Air Cooling System	Lamp cooling fan Propeller exhaust fan
		l.	Shutter control	Manual or automatic
3.	Vacuum chuck	a.	Size	210 mm x 210 mm (exclusive of the space for a 20 x 20 mm monitor cell) Provision for height adjustment for chuck should be given
		b.	Material of construction	High-grade Cu with Ni and Au plating on the top surface
		c.	Vacuum holding arrangement with a vacuum pump system	Grooved top surface for vacuum holding of various cell sizes
		d.	Temperature range for the chuck ($^{\circ}\text{C}$)	$15 - 75^{\circ}\text{C}$ with an accuracy of $\pm 0.5^{\circ}\text{C}$ or better $76-180^{\circ}\text{C}$ with an accuracy of $\pm 1^{\circ}\text{C}$ or better
		e.	Temperature sensor	Pt-100 RTD sensor inserted close to the top surface with a valid calibration certificate of temperature sensor traceable to S. I. unit

		f.	Monitor cell	Shall be fitted onto a portion of the chuck having a Z movement of 20 mm
4	I-V test fixture	a.	Measurement scheme	Four-wire measurement scheme
		b.	Number of front bus bars of the DUT	2 – 6
		c.	Front contacting current and voltage pins	Au tipped round-bottomed, spring-loaded, telescopic pins (the current and voltage probes should be arranged as current-voltage-current-voltage).
		d.	Rear-contacting voltage pins	Multi-point, Au-tipped, spring-loaded, electrically insulated, telescopic pins
		e.	Pin-movement control	Pneumatic
5	Light and Dark I-V testing of solar cells and single cell modules together with lifelong licensing for the software	a.	Source meter range	$\pm 20A$, $\pm 20V$ (max) with an accuracy of $\leq 0.001\%$
		b.	Light I-V testing	At different light intensities (minimum intensity 100 W/m^2), temperatures & for forward and reverse bias conditions
		c.	I-V curve normalization at 1 Sun and STC	To be provided as per IEC 60891 and other equivalent latest standards
		d.	Dark I-V testing	For forward and reverse bias conditions and at different temperatures

		e.	Light I-V testing for hysteresis	For forward and reverse voltage sweeps. Should have an option for changing voltage slew rate for hysteresis measurements
		f.	Other control parameters for light I-V test	Voltage sweep range, voltage step, and bias voltage
		g.	Parameters-for display on the monitor after each light I-V measurement	I-V curve together with all parameters (Isc, Voc, Imp, Vmp, FF, Pm, Efficiency, light intensity, cell temperature, Rs and Rsh)
		h.	Arrangement for I-V testing of single-cell modules	4-wire cable with LEMO connector at one end and banana plugs at the other for connecting to the source meter unit directly Spare 10 pieces of (4-wire cable) LEMO connectors
6.	Computer terminal	a.	Desktop with 19-inch screen	With 8 GB RAM and 1 TB Hard disk (SSD) or better configuration, compatible with Windows 10 or latest version of windows
7.	Operating Condition	a.	Relative Humidity	Measurement should be possible for relative humidity up to 70%
		b.	Ambient Temperature	Measurement should be possible for ambient temperature up to 50 °C
8.	Warranty period	a	Normal	12 months after commissioning
		b	Extended (optional)	12 months post-normal warranty to be quoted separately
9.		a.	Contacts for small size cell measurement (optional)	Magnetic Spring loaded contacts 1 pair

9.				
10.		a.	Calibration certificate (optional)	Valid calibration certificate for source meter.
11.	Operation manual	a	Hard copy and soft copy	2 hard copies to be provided along with a CD for soft copy

Part B

Technical Specifications of the Solar cell LIR tester to be Supplied, Installed and Commissioned at NISE Gurugram

S. No	Item		Sub-item	Details
1.	Basic function(s)	a	Application	Testing of light-induced degradation and regeneration of c-Si solar cells.
2.	Lamp and illumination	a	Lamp type	Ozone-free, Xe short arc lamp, continuous illumination
		b	Min. area of uniform illumination	220 mm x 220 mm
		c	Max. and Min. intensity	Variable intensity from 0.5 Sun to 1.5 Sun
		d	Air Cooling System	Lamp cooling fan Propeller exhaust fan
		e	Shutter control	Manual or automatic
3.	Vacuum Chuck	a.	Size	210 mm x 210 mm (exclusive of the space for a 20 x 20 mm monitor cell)
		b.	Material of construction	High-grade Cu with Ni and Au plating on the top surface
		c.	Vacuum holding arrangement with a vacuum pump system	Grooved top surface for vacuum holding of various cell sizes

		d.	Temperature range for the chuck (°C)	15 – 75 °C with an accuracy of ± 0.5 °C or better 76-180 °C with an accuracy of ± 1 °C or better
		e.	Temperature sensor	Pt-100 RTD sensor inserted close to the top surface with a valid calibration certificate of temperature sensor traceable to S. I. unit
		f.	Monitor cell	Shall be fitted onto a portion of the chuck having a Z movement of 20 mm
4	Light and Dark I-V testing of solar cells and single cell modules together with lifelong licensing for the software	a.	Source meter range	±20A, ±20V (max) with an accuracy of ≤0.001%
		b.	Light I-V testing	At different light intensities (minimum intensity 100 W/m ²), temperatures & for forward and reverse bias conditions
		c.	I-V curve normalization at 1 Sun and STC	To be provided as per IEC 60891 and other equivalent latest standards
		d.	Dark I-V testing	For forward and reverse bias conditions and at different temperatures
		e.	Light I-V testing for hysteresis	For forward and reverse voltage sweeps. Should have an option for changing voltage slew rate for hysteresis measurements
		f.	Other control parameters for light I-V test	Voltage sweep range, voltage step, and bias voltage
		g.	Parameters-for display on the monitor after each light I-V measurement	I-V curve together with all parameters (Isc, Voc, Imp, Vmp, FF, Pm, Efficiency, light intensity, cell temperature, Rs and Rsh)

		h.	Arrangement for I-V testing of single-cell modules	4-wire cable with LEMO connector at one end and bananaplugs at the other for connecting to the source meter unit directly
5.	Custom software for light-induced degradation / regeneration (LID/LIR) test	a.	Parameters to be set and controlled (either manually or through the monitor) in isolation or in combination through a script programme	Light intensity, chuck temperature, voltage bias (till Voc) and their duration
		b.	Light I-V testing during LID/LIR test	Only as per the script programme or on external command
		c.	Features of the software (script) programme	Enabling LID/ LIR test cycle as per the script, intermittent I-V testing and plotting of I-V parameters with time for the duration of the test cycle
6.	Reference solar cell (optional)	a.	Size	2 cm x 2 cm (as per WPVS norms)
		b.	Material	c-Si, PERC
		c.	Accreditation	From NREL/PTB/AIST/Fraunhofer
7.	Computer terminal	a.	Desktop with 19-inch screen or more	With 8 GB RAM and 1 TB Hard disk or better configuration, compatible with Windows 10 or newer version of windows
8.	Operating Condition	a.	Relative Humidity	Measurement should be possible for relative humidity up to 70%
		b.	Ambient Temperature	Measurement should be possible for ambient temperature up to 50 °C

9.	Warranty period	a	Normal	12 months after commissioning
		b	Extended (optional)	12 months post-normal warranty to be quoted separately
10.	Operation manual	a	Hard copy and soft copy	2 hard copies to be provided along with a CD for soft copy

Part C

Technical Specifications of the Solar cell I-V cum LIR tester to be Supplied, Installed and Commissioned at NISE Gurugram

S. No	Item		Sub-item	Details
1.	Basic function(s)	a.	Application	i) Light and dark I-V testing of 192 mm x 192 mm c-Si solar cells ii) Light I-V testing of 20 cm x 20 cm single-cell modules iii) Testing of light-induced degradation and regeneration of c-Si solar cells.
2.	Solar Simulator	a.	Lamp type	Ozone-free, Xe short arc lamp, continuous illumination
		b.	Min. area of uniform illumination	220 mm x 220 mm
		c.	Wavelength range (nm)	300 – 1800
		d.	Spectral match (%)	class AAA-as per the latest IEC 60904-9 standard
		e.	Half angle of collimation	$< \pm 3^\circ$
		f.	Filters	Suitable for AM1.5 G spectrum
		g.	Spatial non-uniformity of irradiance	$< \pm 1.5\%$ (at 1 SUN)

		h.	Temporal instability for STI and LTI	$<\pm 0.5\%$ and $< \pm 2\%$.
		i.	Max. and Min. intensity	Variable intensity from 0.5 Sun (or lower) to 1.5 Sun without changing spectrum
		j.	Input power for lamp supply	Single-phase or three-phase, 230 10% VAC or 415 10% VAC, 50-60 Hz
		k.	Air Cooling System	Lamp cooling fan Propeller exhaust fan
		l.	Shutter control	Manual or automatic
3.	Vacuum chuck	a.	Size	210 mm x 210 mm (exclusive of the space for a 20 x 20 mm monitor cell) Provision for height adjustment should be given.
		b.	Material of construction	High-grade Cu with Ni and Au plating on the top surface
		c.	Vacuum holding arrangement with a vacuum pump system	Grooved top surface for vacuum holding of various cell sizes
		d.	Temperature range for the chuck (°C)	15 – 75 °C with an accuracy of ± 0.5 °C or better 76-180 °C with an accuracy of ± 1 °C or better
		e.	Temperature sensor	Pt-100 RTD sensor inserted close to the top surface with a valid calibration certificate of temperature sensor traceable to S. I. unit
		f.	Monitor cell	Shall be fitted on to a portion of the chuck having a Z movement of 20 mm

4	I-V test fixture	a.	Measurement scheme	Four-wire measurement scheme
		b.	Number of front bus bars of the DUT	2 – 6
		c.	Front contacting current and voltage pins	Au tipped round-bottomed, spring-loaded, telescopic pins (The current and voltage probes should be arranged as current-voltage-current-voltage).
		d.	Rear-contacting voltage pins	Multi-point, Au-tipped, spring-loaded, electrically insulated, telescopic pins
		e.	Pin-movement control	Pneumatic
		f.	Rear current contact	The chuck body with Four probe configuration.
5	Light and Dark I-V testing of solar cells and single cell modules together with lifelong licensing for the software	a.	Source meter range	$\pm 20A$, $\pm 20V$ (max) with an accuracy of $\leq 0.001\%$
		b.	Light I-V testing	At different light intensities (minimum intensity 100 W/m^2), temperatures & for forward and reverse bias conditions
		c.	I-V curve normalization at 1 Sun and STC	To be provided as per IEC 60891 and other equivalent latest standards
		d.	Dark I-V testing	For forward and reverse bias conditions and at different temperatures

		e.	Light I-V testing for hysteresis	For forward and reverse voltage sweeps. Should have an option for changing voltage slew rate for hysteresis measurements
		f.	Other control parameters for light I-V test	Voltage sweep range, voltage step, and bias voltage
		g.	Parameters-for display on the monitor after each light I-V measurement	I-V curve together with all parameters (Isc, Voc, Imp, Vmp, FF, Pm, Efficiency, light intensity, cell temperature, Rs and Rsh)
		h.	Arrangement for I-V testing of single-cell modules	4-wire cable with LEMO connector at one end and banana plugs at the other for connecting to the source meter unit directly Spare 10 pieces of (4-wire cable) LEMO connectors
6.	Custom software with lifelong licensing for light-induced degradation / regeneration (LID/LIR) test	a.	Parameters to be set and controlled (either manually or through the monitor) in isolation or in combination through a script programme	Light intensity, chuck temperature, voltage bias (till Voc) and their duration
		b.	Light I-V testing during LID/LIR test	Only as per the script programme or on external command
		c.	Features of the software (script) programme	Enabling LID/ LIR test cycle as per the script, intermittent I-V testing and plotting of I-V parameters with time for the duration of the test cycle
7.	Reference solar cell	a.	Size	2 cm x 2 cm (as per WPVS norms)
		b.	Material	c-Si, PERC
		c.	Accreditation	From NREL/PTB/AIST/Fraunhofer

8.	Computer terminal	a.	Desktop with 19-inch screen	With 8 GB RAM and 1 TB Hard disk (SSD) or better configuration, compatible with Windows 10 or latest version of windows
9.	Operating Condition	a.	Relative Humidity	Measurement should be possible for relative humidity up to 70%
		b.	Ambient Temperature	Measurement should be possible for ambient temperature up to 50 °C
10.	Warranty period	a	Normal	12 months after commissioning
		b	Extended (optional)	12 months post-normal warranty to be quoted separately
11.		a.	Contacts for small size cell measurement (optional)	Magnetic Spring loaded contacts 1 pair
12.		a.	Calibration certificate (optional)	Valid calibration certificate for source meter.
13.	Operation manual	a	Hard copy and soft copy	2 hard copies to be provided along with a CD for soft copy

FORMAT FOR SUBMISSION OF BIDDERS DETAILS

1.	Name of supplier	
2.	Registered Address	
2.	Phone No	
	Fax No	
	Name of proprietor/CEO/ Chairman	
	Phone no/Mobile No	
	Email ID	
3.	Factory Address	
	Phone no	
	Fax no	
	Email ID	
4.	Delhi/NCR Address if any	
	Phone no	
	Fax no	
	Email ID	
5.	Correspondence Address	
6.	Name of contact Person	
	Designation	
	Phone no / Mobile No	
	Fax no	
	Email ID	
7.	Website	

8.	Bank related information	
	Bank name	
	Branch name	
	Bank address	
	Bank phone no.	
	Bank fax no.	
	Bank MICR Code (9 digit)	
	RTGS-IFC Code	
	Account type	
	Account no	
9.	PAN NO	
10	GST , PAN/TAN & TIN number of firm	

I certify that the information given herein is correct to the best of my knowledge and belief.

Signature of Proprietor/CEO/Chairman Seal of the company/concern.

Performance Statement Form of supplied Solar cell I-V and LIR tester/I-V cum LIR tester.

Name of Bidder: _____

Order No. & Date	Client	Contact person/ Phone	Description & quantities of ordered items	Value of order	Date of completion		Satisfactor y completion
					As per contract	Actual	

To be attached: Documentary evidence (client's letter or certificate) in support of satisfactory completion of above orders. Minimum 3 Customers

Signature and seal of the Bidder Date

Price Bid Format
(On Company's Letterhead)

Ref No.

Date: / / 20..

PRICE BID

The Director General
National Institute of Solar Energy
(NISE) Gurugram – Faridabad
Highway
Gwal Pahari; Gurugram – 122
003 Haryana

Subject: Purchasing of a Solar cell I-V cum LIR tester at NISE Campus – Reg
Tender No.

Part No.	S. No	Item	CIF, NISE Gurugram inclusive of all charges as mentioned as sl. no. 5, 6 & 11	Extended warranty post warranty inclusive of all taxes for 2 Years	Total
Part A					
Part B					

OR

Part No.	S. No	Item	CIF, NISE Gurugram inclusive of all charges as mentioned as sl. no. 5, 6 & 11	Extended warranty post warranty inclusive of all taxes for 2 Years	Total
Part C					

Extended warranty period starts after one year of warranty period.

Note: The Bidders who shall not quote for extended warranty Charges shall not be

considered for bid evaluations. The bids shall be evaluated considering both CIF, NISE Gurugram Price and Extended warranty Charges.

Amount (in words)

Signature: _____

Name of the Representative Submitting the

Bid: Designation:

Company Seal

Bank Guarantee Format for EMD

Bank Guarantee
No.
Bank Guarantee Amount: ₹ /-
Bank Guarantee Cover from: / / 20.. to / / 20..
Last Date of lodgment of Claim: / / 20...

FINANCIAL BANK GUARANTEE

To

The Director General
National Institute of Solar
Energy Gurugram –
Faridabad Road Gwal Pahari;
Gurugram – 122 003Haryana

Subject: Tender Document for Supply, Installation and Commissioning of a Solar cell I-V cum LIR tester at National Institute of Solar Energy, Gurugram, Haryana (NIT No)

Dear Sir / Madam,

Whereas M/s (hereinafter called the “Tenderer”) has submitted their offerdated for the **Supply, Installation and Commissioning of a Solar cell I-V cum LIR tester at National Institute of Solar Energy, Gurugram** (hereinafter called the “**Tender**”) against the Purchaser’s Tender enquiry No.....,KNOW ALL MEN by these presents that WEof having our registered office at..... are bound to **M/s National Institute of Solar Energy, Gurugram** (hereinafter called the “**Purchaser**”) the sum of ₹...../- (**RupeesOnly**) for which payment will and truly to be made to the said Purchaser, the Bank binds itself, its successors and assigns by these presents. Sealed with the Common Seal of the said Bank this day of 20.....

THE CONDITIONS OF THIS OBLIGATION ARE:

- 1) If the tenderer withdraws or amends, impairs or derogates from the tender in any respectwithin the period of validity of this tender.
- 2) If the tenderer having been notified of the acceptance of his tender by the Purchaser during theperiod of its validity:-

- a) If the tenderer fails to furnish the security/performance guarantee for the due performance of the contract.
- b) Fails or refuses to accept/execute the contract.

We undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it owing the occurrence of one or both the two conditions, specifying the occurred condition or conditions. This guarantee will remain in force up to and including 45 days after the period of tender validity and any demand in respect thereof should reach the bank not later than the above date. Signature of the authorized officer of the bank's name and designation of the officer Seal, name and address of the Bank and address of the Branch.

“Notwithstanding anything contained herein;

- Our liability under this Bank Guarantee shall not exceed ₹/- (Rupees Only).
- This Bank Guarantee shall be valid up to / / 20
- We are liable to pay the guarantee amount or any part thereof under this Bank Guarantee only if you serve upon us a written claim or demand on a before / / 20 (date of expiry of Guarantee). ”

Banker's Authorized Representative(s)

Date:

Place

:

Bank Guarantee
Format

SECURITY/PERFORMANCE BANK GUARANTEE

National Institute of Solar
Energy Gurugram - Faridabad
Road
Gwal Pahari
Gurugram – 122 003, Haryana

Bank Guarantee No.

Dated:

This deed of Guarantee is made on _____ the day of _____ (write name of the month), 20.... by _____ (Write Bank name which is giving Bank Guarantee), having branch office at _____ (Write Bank Branch Office address), (hereinafter called “**the Bank**”), which expression shall unless repugnant to the context and meaning thereof includes its legal representatives, successors and assignees and National Institute of Solar Energy, having their office at Gurugram - Faridabad Road, Gwal Pahari, Gurugram – 122 003, Haryana (hereinafter called “**the NISE**”) which expression shall unless repugnant to the context and meaning thereof includes its legal representatives, successors and assignees.

Whereas NISE has awarded a supply contract bearing No.__(Purchase Order or Work Order No)dated_____to M/s_____(Write the Manufacturer/ Supplier Company Name here),having their Registered office at _____(Write Company Regd officeaddress), (hereinafter referred as “**the Manufacturer/ Supplier**”) for _____(Write thedescription of the *Purchase Order / Work Order*) as per the said order.

AND whereas, the **Manufacturer/ Supplier** has agreed to submit a Security/ Performance in the form of a Bank Guarantee for Rs. _____(Rupees__Only) to the NISE as per the Contract valid up to / /20.. .

The **Manufacturer/ Supplier** have agreed to perform or fulfill the contract as per terms and conditions of the said order. In case, the Manufacturer/ Supplier fails to perform or fulfill the contract as per the said order, the NISE is entitled to demand an amount equal to Rs. __ (Rupees _____Only) from the **Manufacturer/ Supplier**.

We, _____(Bank Name), do hereby undertake and Guarantee to make payment to the NISE a sum of Rs. _____(Rupees____only) in case the **Manufacturer/ Supplier** fails as per the said order.

Whereas, Bank's liability under this Bank Guarantee is restricted to Rs.____(Rupees _____only) and it will remain valid till / / 20... . Unless a claim or demand in writing is made against us under this Guarantee before that date, all rights of the NISE under this Bank Guarantee shall be forfeited and the Bank shall be relieved and discharged from all liability there under. This guarantee shall automatically stand cancelled after the date of expiry as stated above notwithstanding the fact that the original guarantee document is returned to us by you or not.

NOTWITHSTANDING ANYTHING CONTAINED HERE IN:-

- a) Our liability under this Bank Guarantee shall not exceed to Rs.____(Rupees _____ only).
- b) This Bank Guarantee shall be valid up to/ / 20.....
- c) The Bank is liable to pay the Guarantee amount or any part thereof under this Bank Guarantee only and only if you serve upon a written claim or demand on or before / /20... .

Place.....
Date.....

Signature
Bank Seal
Bank Code No.

Model Certificate for Tenders (for transitional cases as stated in para 3 of Order F. No. 6/18/2019-PPD dated 23rd July, 2020)

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I hereby certify that this bidder is not from such a country and is eligible to be considered."

Model Certificate for Tenders

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached]"

Model Certificate for Tenders for Works involving possibility of sub-contracting

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

Bank Details for the Purpose of issuing BG

Account Holder Name: National Institute of Solar Energy
(NISE) Gurugram - Faridabad Highway, Gwal Pahari
Gurugram - 122 003, Haryana
Tel: +91 124 285 3056; 3060

Bank Name: **State Bank of India**
Branch: State Bank of India – Sector 56, Gurugram

Address: 45-49 Centum Plaza, Sector 53
Gurugram - 122 002, Haryana

SB Account No.
33843408697 IFSC Code:
SBIN0011443 MICR Code:
110002460 SWIFT Code:
SBININBB
Branch Code: 11443

NISE GST Details

NISE full address is:
National Institute of Solar Energy
Gurugram – Faridabad Road
Gwal Pahari; Gurugram – 122 003, Haryana

NISE GST No is **06AAAJN0939P1ZR**.
State Code : 06