Tender fee: 1000

Document No. 446/J/2017

BIDS ARE INVITED FOR SUPPLY, INSTALLATION & COMMISSIONING OF 50 KW ROOFTOP GRID CONNECTED SOLAR POWER PLANT AT A.I. JAT H.M. COLLEGE, ROHTAK

NOTICE INVITING E-TENDERS

Sealed Bids are invited by Principal, A.I. Jat H.M. College, Rohtak for supply, installation and commissioning of 50 KWp Grid connected Solar Power Plant in the college from the eligible Solar Vendors of MNRE. The tender document having detailed specifications, terms & conditions can be obtained from the office on cash payment/demand draft in favour of Principal of Rs. 1000/- on any working day from 14/05/2017 at 11:00 a.m. and submit the same within 10 days of publication of tender notice i.e. 23/05/2017 at 3:00 p.m. Tenders will be opened on 26/05/2017 at 11:00 a.m.

PRINCIPAL, A.I. Jat H.M. College, Rohtak reserve the right to reject any or all the offers or to modify the selection process without assigning any reason thereof. Required and necessary informations are available on the **website:** **www.jatcollegerohtak.ac.in** or in the office of Principal.

Principal
A.I. Jat H.M. College,
Rohtak

NOTICE INVITING E-TENDERS

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Principal
A.I. Jat H.M. College,
Rohtak

IMPORTANT DATES

DATE FOR SALE OF TENDER FORM	: 14/05/2017 to 22/05/2017 from 10:00 A.M to 4:00 P.M
LAST DATE FOR SUBMISSION	: 23/05/2017 Up to 3:00 P.M
OPENING OF TENDER BIDS	: 26/05/2017 at 11:00 A.M

SUPPLY, INSTALLATION AND COMMISSIONING OF 50 Kwp ROOFTOP GRID CONNECTED SOLAR POWER PLANT WITH NET METERING AT ALL INDIA JAT HEROES' MEMORIAL COLLEGE, ROHTAK

1. SCOPE OF WORK/DESCRIPTION OF STORES

(i) Bids are invited from the prospective bidders for design, Engineering, Manufacturing, Storage, Civil Work, Supply, Erection, Testing & Commissioning of 50 KWp GCRT Solar Power Plant with Net Meter Scheme including applying , Purchase of Net meter and Gross meter from UHBVN and maintenance for a period of 5 years including Power Evacuation System and cost of replacement of all the parts, covered under Warrantee period for a period of 5 years from the date of commissioning of Rooftop grid connected solar PV system in site.

2. MINIMUM ELIGIBILITY CONDITIONS

The Contractor Shall be Channel Partner or New Entrepreneurs empanelled by MNRE for Rooftop grid connected solar power plant having Validity up to December, 2017

The Bidder as Channel Partner or New Entrepreneurs empanelled by MNRE must submit the tie-up certificate with the manufacturers of major components **(Document to be submitted:** Test reports and tie up certificates for major components)

(i) The overall average annual turnover of the bidder in the last three financial years ending March, 2017 should be at least Rs. **50.00lakhs. (Document to be submitted:** Certificate from CA in the prescribed format given at **Performa-I**

(ii) The bidder should have valid CST/ State VAT/TIN registration certificate issued before the last date of the tender. (Document to be submitted: Relevant Certificate)

(iii) The Bidder should have never been debarred by any Government agencies/departments/PSUs for the item for which they are quoting against this tender (**Document to be submitted**: Undertaking in the prescribed **Proforma - II)**

(iv) The Bidder should have installed minimum 500 Kwp SPV Power Plants in off-grid or grid type system, submitted with Certificate in this regard.

3. SECURITY DEPOSIT / PERFORMANCE SECURITY DEPOSIT

The successful Bidder shall have to deposit Security Deposit (SD) equivalent to **5% of the work order value within 10 days** from the date of issue of the work in shape of D.D or bank Guarantee. After the successful completion of the work order, the SD shall be treated as Performance Security Deposit (PSD) & shall be released on successful completion of the warrantee period of Five years from the date of

commissioning of the project. In case of delays, the validity of the SD/PSD will be extended by the firm failing which it will be encased.

4. PAYMENT TERMS

The payments shall be made as per the following terms and conditions:

a. **60% of the ordered value** after the complete supply of the materials related to system at site.
b. **20% of the ordered value after installing the system without net meter.**
c. **20% of the ordered value** after Commissioning of the complete system with Net Meter and inspection carried out for smooth working of Solar Power Generation System by DNRE/HAREDA Officials.
d. Payment to be made accordance to latest Govt. rules for Deduction of TDS on payment of Supplier

5. TIME SCHEDULE, PENALTY/LIQUIDATED DAMAGES

a. These systems are allowed to be got **inspected, supplied, installed and commissioned within 8 Weeks** time **from the date of issue of work order** during which following milestones should be achieved by the firm for execution of the project:

   i. Though the work order shall be released after entire satisfaction of the College about clearance of the site, the firm shall also visit the site under intimation to Principal. In case no communication is received from the firm about the site, it will be assumed that the site is clear and no correspondence/request for additional time without penalty in this regard shall be entertained later.

6. WARRANTY

(i) The warranty period shall be 5 years for complete system from the date of commissioning and handing over of the system and performance guarantee of modules shall be 90% after 10 Year and 80% after 25 years. The successful bidder shall rectify defects developed in the system within warranty period promptly. The procedure under warrantee is as follows:

   a) The notice through E-mail / hard copy to rectify the complaints shall be issued by the user to the supplier. This shall be followed by two reminders on 5 days intervals each.

   b) Even after this, the complaints remain unattended then the SD will be forfeited.

(ii) The Supplier in consultation with concerned College committee will conduct training programme for users, focusing on main features, operation and maintenance of other systems.

(iii) The Supplier shall continue to provide spare parts after the expiry of warranty period at the genuine cost. If the contractor fails to continue to supply spare parts and services to users then the user shall take appropriate action against the firm.

7. OTHER TERMS AND CONDITIONS

(i) The offer shall be submitted in physical form.

(ii) Before submission of bids, the bidder must ensure that scanned copies of all the necessary documents have been submitted with the bid.

(iii) Principal, A.I. Jat H.M. College, Rohtak will not be responsible for any delay in submission of bids due to any reason what so ever.

iv) Material shall be strictly as per specification mentioned in document No. 446/J/2017. If there is any left out specification, the same shall be considered as per the MNRE / HAREDA specification/applicable latest BIS/International Standards.

(v) All disputes relating to this work shall be subject to the jurisdiction of ROHTAK & PRINCIPAL, A.I. Jat H.M. College, Rohtak shall be the sole arbitrator.

(vi) The make of parts of systems should be strictly as per the make mentioned in the technical bid and test reports submitted along with the offer.

(vii) The Principal, A.I. Jat H.M. College, Rohtak will have the right of rejecting all or any of the bids without assigning reason thereof.

(viii) In case of any ambiguity in interpretation of any of the clauses/ provision of the said Document No. 446/J/2017, the decision of the Principal, A.I. Jat H.M. College, Rohtak shall be final and binding.

(ix) To assist in the examination, evaluation and comparison of bids the Principal, A.I. Jat H.M. College, Rohtak may at its discretion to ask the bidder for a clarification of its bid. The request for clarification and the response shall be in writing.

(x) Any material /instrument required to complete /successful running of the project which is not mentioned in the Document No. 446/J/2017 will be provided by the bidder in the quoted rates only and no additional payment shall be made.

(xi) **The manufacturer shall supply all technical literature and drawing considered necessary for the installation, operation and maintenance of the equipment and its fittings**.

ANNEXURE-I

TECHNICAL SPECIFICATIONS

The proposed projects shall be commissioned as per the technical specifications given below.

1.0 SOLAR PHOTOVOLTAIC MODULES:

1.1.1 The PV modules used should be made in India preferably vikram/warry (A category).

1.1.2 The PV modules used must qualify IEC 61215 , IEC 61730 , IEC 61701 or other relevant test

a) Module shall consist of Solar Cell of minimum 3 Bus Bar technologies.

b) The total solar PV array capacity should not be less than allocated plant capacity (kWp) and should consist of solar crystalline modules of minimum 250Wp and above wattage. Module capacity less than minimum 250 watts would not be accepted.

c) Protective devices against surges at the PV module shall be provided. Low voltage drop by-pass diodes shall be provided in array.

d) The module frame shall be made of corrosion resistant materials, preferably having anodized aluminums.

e) The bidder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power in his bid. Principal, A.I. Jat H.M. College, Rohtak /owners shall allow only minor changes at the time of execution.

f) The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-pass diode. The box shall have hinged, weather proof lid with Captive screws and cable gland entry points or may be of sealed type and IP-65 rated.

g) I-V curves at STC of all the modules should be provided by bidder.

h) The efficiency of the PV modules should be minimum 15% and fill factor should be more than 70%.

i) Each PV module must use RFID tag(Inside) which must contain information as per MNRE requirement.

1.1.3 **Performance Warranty of Modules**: The PV Modules must be warranted for output wattage, which should not be less than 90% of rated output at the end of 10 years and 80% of rated output at the end of 25 years.

1.2 ARRAY MOUNTING STRUCTURE

- The PV modules should be mounted on metallic structures of adequate strength and appropriate design, which can withstand load of modules and high wind velocities up to 150 km per hour. .
- Suitable fastening arrangement such as grouting and calming both should be provided to secure the installation against the specific wind speed.

1.3 JUNCTION BOXES (JBs)

- The Junction Boxes (JBs) shall be made of GRP/FRP/Powder Coated Aluminum /cast aluminum alloy with full dust, water & vermin proof arrangement.
- Each Junction Box shall have High quality suitable capacity Metal Oxide Varistors (MOVs) / surge arrestors, suitable Reverse Blocking Diodes.

1.4 DC & AC DISTRIBUTION BOARD:

a) DC Distribution panel to receive the DC output from the array field.

b) DC DPBs shall have sheet from enclosure of dust & vermin proof conform to IP 65 protection. The bus bars are made of copper of desired size. Suitable capacity MCBs/MCCB shall be provided for controlling the DC power output to the PCU along with necessary surge arrestors.

c) AC Distribution Panel Board (DPB) shall control the AC power from PCU/ inverter, and should have necessary surge arrestors. Interconnection from ACDB to mains at LT Bus bar while in grid tied mode.

d) The change over switches, cabling work should be undertaken by the bidder as part of the project.

e) Should conform to Indian Electricity Act and rules (till last amendment).

1.5 PCU/ Inverter:

As SPV array produce direct current electricity, it is necessary to convert this direct current into alternating current and adjust the voltage levels to match the grid voltage. Conversion shall be achieved using an electronic Inverter and the associated control and protection devices. All these components of the system are termed the "Power Conditioning Unit (PCU)". In addition, the

a) The combined wattage of all inverters should not be less than rated capacity of the power plant under STC.
b) Shall have Maximum Power Point Tracker (MPPT).
c) Shall have function to supply the power to load in combination of PV and Grid if PV supply is short than load.
d) PCU shall also be DG set interactive, if required.
e) Shall be capable of complete automatic operation including wake-up, synchronization & shutdown.
f) PCU/ inverter should have internal protection arrangement against any sustainable fault in feeder line and against the lightning on feeder.

g) Shall have built-in meter and data logger (for systems of > 10 KWp capacity) to monitor plant performance through external computer shall be provided.
h) Shall have test certificates from the MNRE approved test centres / NABL /BIS /IEC accredited testing- calibration laboratories or by international test houses.
i) Protection of Enclosure: IP-20(Minimum) for indoor & IP-65(Minimum) for outdoor.
j) Efficiency(minimum) : ≥ 95
k) PF :> 0.9
l) The PCU/ inverters should be tested from the MNRE approved test centers / NABL /BIS /IEC accredited testing- calibration laboratories. In case of imported power conditioning units, these should be approved by international test houses.

m) The inverter manufacturer should attach efficiency certificate from Independent Third party Testing laboratory i.e. IEC, TUV, SNL/ERTL & STQC. PCU should confirm to IEC 61683 for efficiency measurements and IEC 60068 2 for environmental testing. MPPT unit should confirm to design qualification IEC 62093.
n) IEC-62116 for AntiIslanding, IEC 62109-1, IEC 62109-2 for safety IEC 61727 for Utility Interface.

1.6 INTEGRATION OF PV POWER WITH GRID:

The output power from SPV would be fed to the inverters which converts DC produced by SPV array to AC and feeds it into the main electricity grid after synchronization. In case of grid failure, or low or high voltage, solar PV system shall be out of synchronization and shall be disconnected from the grid. Once the DG set comes into service PV system shall again be synchronized with DG supply and load requirement would be met to the extent of availability of power with reverse protection to flow of Current to DG.

b. CEA guideline 2013 for interconnecting solar power with Grid shall be followed.

c. Certification of Islanding protection in the inverter/PCU from the manufacturer of the equipment shall be mandatory. This shall be arranged by the supplier from the manufacturer.

d. Verification report/test report shall be issued by the DISCOM or their authorized agency.

e. All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS60947 part I, II and III.

1.7 DATA ACQUISITION SYSTEM / PLANT MONITORING

i. Web Based remote Monitoring system to be provided to check the data of SPV Modules Online.
ii. Inverter/PCU voltage & current
iii. Mains Voltage, Current & Frequency
iv. PV Voltage, Amps & KWh
v. System Mimic & Faults
vi. Battery voltage, Current & Temperature (in case of hybrid system)

1.8 TRANSFORMER "IF REQUIRED" & METERING:

1.8.1 The bidirectional electronic energy meter of required class shall be installed

for the measurement of import/Export of energy.

1.8.2 The bidder must take approval/NOC from the UHBVN for the connectivity, technical feasibility, and synchronization of SPV plant with distribution network and submit the same to Principal, A.I. Jat H.M. College, Rohtak before commissioning of SPV plant.

1.8.3 Reverse power relay shall be provided by bidder (if necessary), as per the local DISCOM requirement. & Reverse Protection shall also be Provided by Contractor in case of Synchronization of Inverter through DG

1.9 PRIORITY FOR POWER CONSUMPTION

Regarding the generated power consumption, in case of string inverter, priority need to given for internal consumption first and thereafter any excess power can be exported to grid.

2.0 PROTECTIONS

The system should be provided with all necessary protections like earthing, lightning, and grid islanding as follows:

2.0.1 LIGHTNING PROTECTION

The SPV power plants shall be provided with lightning &overvoltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc. The entire space occupying the SPV array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors. Lightning protection should be provided as per IEC 62305 standard. The protection against induced high-voltages shall be provided by the use of metal oxide varistors (MOVs) and suitable earthing such that induced transients find an alternate route to earth.

2.0.2 SURGE PROTECTION

Internal surge protection shall consist of three MOV type surge-arrestors connected from +ve and –ve terminals to earth (via Y arrangement)

2.0.3 EARTHING PROTECTION

Each array structure of the PV yard, Lightning arrester and PCU, ACDB, DCDB shall be should be separately grounded/ earthed properly as per IS:3043-1987. In addition the lighting arrester/masts should also be earthed inside the array field. Earth Resistance shall be tested in presence of the representative of Department/Principal, A.I. Jat H.M. College, Rohtak as and when required after earthing by calibrated earth tester.
Earth resistance shall not be more than 5 ohms. It shall be ensured that all the earthing points are bonded together to make them at the same potential.

2.1 GRID ISLANDING:

a) In the event of a power failure on the electric grid, it is required that any independent power-producing inverters attached to the grid turn off in a short period of time. This prevents the DC-to-AC inverters from continuing to feed

power into small sections of the grid, known as “islands.”

Powered islands present a risk to workers who may expect the area to be unpowered, and they may also damage grid-tied equipment. The Rooftop PV system shall be equipped with islanding protection. In addition to disconnection from the grid (due to islanding protection) disconnection due to under and over voltage conditions shall also be provided.

b) A manual disconnect pole isolation switch beside automatic disconnection to grid would have to be provided at utility end to isolate the grid connection by the utility personnel to carry out any maintenance. This switch shall be locked by the utility personnel

2.2 CABLES

Cables of appropriate size to be used in the system shall have the following characteristics:

- All cables to be supplied should be as per BIS and should have proper current carrying capacity and should not be heated.
- DC Cables of various sizes as per load requirement for connecting all modules /arrays to junction boxes and from junction boxes to PCU should be used.
- Only copper wire of appropriate size based on load requirement of reputed make shall have to be used.
- The size of each type of DC/AC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 2%.

2.3 DANGER BOARDS AND SIGNAGES:

Danger boards should be provided as and where necessary as per IE Act. /IE rules as amended up to date. Three signages shall be provided one each at Rooftop, Near PCU and main entry from administrative block. Text of the signages may be finalized in consultation with Principal, A.I. Jat H.M. College, Rohtak / owner.

2.4 FIRE EXTINGUISHERS:

The firefighting system for the proposed power plant for fire protection shall be provided

2.5 SAFETY MEASURES:

The bidder shall take entire responsibility for electrical safety of the installation(s) including connectivity with the grid and follow all the safety rules & regulations applicable as per Electricity Act, 2003 and CEA guidelines etc.

Note: The Other Technical Speciation if any left out Shall be in accordance with HAREDA/MNRE Specification

PROFORMA-I

INFORMATION IN SUPPORT OF MEETING ESSENTIAL ELIGIBILITY CONDITIONS REGARDING AVERAGE ANNUAL TURNOVER OF THE BIDDER IN LAST THREE FINANCIAL YEAR ENDING 31.3.2017

Required: Rs.

S.No.	Financial Year	Turn Over (Rs. in lacs)	Turn Over (Rs. in lacs)in words
1.	2016-17		
2.	2015-16		
3.	2014-15		
	TOTAL		

Signature of Charted Accountant with seal

Name _____

M.No. _____

PROFORMA-II

DECLARATION BY THE BIDDER

I/We_____(herein after referred to as the Bidder) being desirous for the work under the Principal, A.I. Jat H.M. College, Rohtak document No. 446/J/2017 and having fully under stood the nature of the work and having are fully noted all the terms and conditions, specifications etc. as mentioned in the tender document, DO HEREBY DECLARE THAT

1. The bidder is fully aware of all the requirements of the tender document and agrees to accept all terms and conditions of the DNIT.
2. The solar modules to be used in the projects under this tender will be manufactured in India.
3. The bidder is capable of executing and completing the work as required in the DNIT and as per HAREDA/MNRE Technical Specifications.
4. The bidder accepts all risks and responsibilities directly or indirectly connected with the performance of the tender.
5. The bidder has no collusion with other bidder, any employee of principal, A.I. Jat H.M. College, Rohtak or with any other person or firm in the preparation of the bid.
6. The bidder has not been influenced by any statement or promises of principal, A.I. Jat H.M. College, Rohtak or any of its employees, but only by the tender document.
7. The bidder is financially solvent and sound to execute the work.
8. The bidder is sufficiently experienced and competent to perform the contract to the satisfaction of principal, A.I. Jat H.M. College, Rohtak .
9. The information and the statements submitted with the tender are true.
10. The bidder is familiar with all general and special laws, acts, ordinances, rules and regulations of the municipal, District, state and central government that may affect the work, its performance or personnel employed therein.
11. The bidder has never been debarred from similar type of work by Principal, A.I. Jat H.M. College, Rohtak or Government undertaking/Department.
12. This offer shall remain valid for acceptance for 12 Months from the date of opening of the tender.
13. The bidder gives the assurance to execute the tendered work as per specifications terms and conditions.
14. The quote to supply the goods and materials specified in the underwritten schedule in the manner in which and within the time specified as set forth in the conditions of contract at the rates given in the financial bid.

Date **(Signature of Bidder)**

with SEAL

PROFORMA-III

GENERAL PARTICULARS OF BIDDER

1.	**Category under which bid is applied** a) MNRE Empanelled New Entrepreneurs b) MNRE Channel Partner	
2.	**Details**	
3.	Name of firm	
4.	Postal Address	
5.	Telephone, Telex, FaxNo	
6.	E-mail	
7.	Website	
8.	Name &designation of the authorized signatory to whom reference shall be made	
9.	Present activities/business of the firm i. Module Manufacturer iii.PCU manufacturer iv) System Integrator v) New firm	
10.	Type of organization - Private Ltd. Company - Public Ltd. Company - Other category	
11.	Registration number TIN No PAN No Any other	
12.	Place & State of billing	
13.	Have the Bidder /firm ever been debarred by any Govt. Deptt. /Undertaking for undertaking any work?	

14.	Yearly supply capacity	
15.	Name of firms with whom tie-up has been made	a. With…… for…….. b. With…… for…….. c. With…… for……..
16.	Makes of components offered for the system	
	a.	
	b.	
	c.	
17.	Any Other Information	

PROFORMA-IV

FINANCIAL BID

(Rate per watt of rooftop grid connected solar power plant with five years warrantee of complete systems FOR destination including transportation, packaging, installation, VAT, CST, Octroi etc).

Sr. N.	Description	Capacity in Kwp	Unit Rate (Rs/Wp) in words	Unit Rate (Rs/Wp) In figures
1	Design, Engineering, Manufacturing, Storage, Civil Work, Supply, Erection, Testing & Commissioning including maintenance for a period of 5 years including Power Evacuation System and cost of replacement of all the parts, covered under Guarantee period for a period of 5 years from the date of commissioning of Rooftop solar PV system in various cities in State of Haryana	50 kwp GCRT Solar Power Plant with Net Meter		

Date……..

Place……

Business Address……

Signature……

Name……..

Designation……..

Company Stamp

Annexure-II

Check list of Documents to be Submitted

(The following information/documents are to be submitted by the bidders along with the BID)

S.No.	**Particulars**	**Submitted or Not (Yes/No).**
1.	Test certificate (s) of system in the name of the bidder/Manufacturer as per MNRE standards in support of eligibility as Manufacturer a. Solar Module b. PCU/Inverter	
2.	**Tie up certificates** a. Solar Module b. PCU/Inverter	
3.	**Proforma-I about** average annual turnover of the bidder in the last three financial **duly signed by CA**	
4.	Copy of valid CST/ State VAT/TIN registration certificate.	
5.	**Proforma-II (D**eclaration about debarring and acceptance of all terms & conditions of DNIT on the letter head of the bidder)	
6.	Bidders details in **Proforma III**	
7.	Price bid in **Proforma IV**	
8.	Any other, pls specify	