



MAHARSHI DAYANAND UNIVERSITY, ROHTAK

**ENGINEERING CELL,
M.D.UNIVERSITY CAMPUS, ROHTAK**

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**STANDARD BIDDING DOCUMENT
PROCUREMENT OF
CIVIL WORKS**

PART1 : COMPLETE BIDDING DOCUMENT

Name of work: Design and SITC of 1.5 Megawatt grid connected roof top solar power plant including Operation and Comprehensive Maintenance (O&M) under RESCO mode at various buildings in MDU, Rohtak

NOTICE INVITING TENDER**PRESS NOTICE**

M.D. UNIVERSITY, ROHTAK	
Name of Work:	Design and SITC of 1.5 Megawatt grid connected roof top solar power plant including Operation and Comprehensive Maintenance (O&M) under RESCO mode at various buildings in MDU, Rohtak
Earnest Money:	(i) From Contractor = Rs. 10.00 Lakhs/-
Time limit	06 Months
Tenders to be received till: 03.00 PM on dated 26.03.2024.	
<p>(i) The tenders will be received only through E-tendering and for further details visit website http://www.etenders.hry.nic.in.</p> <p>(ii) The Pre-Bid Meeting will be held on 19.03.2024 at 11:00 A.M. in the O/o Technical Advisor in Engg. Cell, MDU, Rohtak for any queries and observations.</p> <p>(iii) Cost of Bid document is Rs. 15,000/- (non refundable), e- Service Fees is Rs. 1000/- (non refundable) and Earnest Money as stated above will be deposited through online NETBANKING/NEFT/RTGS.</p> <p>(iv) The contractors/agencies will keep in touch with the University Web site (http://www.etenders.hry.nic.in) for any amendment/ addendum till the last date/ revised last date of submission of tender and may incorporate such changes in the tender bids, if required.</p>	

Executive Engineer
M.D.U., Rohtak

DETAIL NOTICE INVITING TENDER

e-Tender behalf of Registrar,MDU,Rohtak is invited for purchase/work of below mentioned items in single stage two cover system i.e. Request for Pre-Qualification/Technical Bid (online Bid under PQQ/ Technical Envelope) and Request for Financial Bid (comprising of price bid Proposal under online available Commercial Envelope):-

Sr. No	Description of work / Items	EMD to be deposited by Bidder	Tender Document Fee (Rs.) & e-Service/Processing fee (Rs.)	Start Date & Time of Bid Preparation & Submission	Expiry Date & Time of Bid Preparation & Submission
1.	Design and SITC of 1.5 Megawatt grid connected roof top solar power plant including Operation and Comprehensive Maintenance (O&M) under RESCO mode at various buildings in MDURohtak	Rs. 10.00 lakhs	Rs. 15,000/-for Tender Document fee & Rs. 1000/-for e-Service/Processing fee	04.03.2024	Upto 26.03.2024 (03:00 P.M)

- Detailed notice inviting tender/estimate drawing can be seen in the office of the undersigned during office hours.
- Bidding documents available on website <http://www.etenders.hry.nic.in>
- Newly enlisted contractors/societies/suppliers/manufactures should bring with them proof of their enlistment in appropriate class.
- The bidders would submit bid through e-tendering only on the website i.e. <http://www.etenders.hry.nic.in>

Under this process, the Pre-qualification/ Technical online bid Application as well as online Price Bid shall be invited at single stage under two covers i.e. PQQ/Technical & Commercial Envelope. Eligibility and qualification of the Applicant will be first examined based on the details submitted online under first cover (PQQ or Technical) with respect to eligibility and qualification criteria prescribed in this Tender document. The Price Bid under the second cover shall be opened for only those Applicants whose PQQ/ Technical Applications are responsive to eligibility and qualifications requirements as per Tender document.

- The payment for Tender Document Fee, e-Service/Processing Fees and EMD shall be made by eligible bidders through online NETBANKING/NEFT/RTGS.**
- Intending bidders will be mandatorily required to online sign-up (create user account) on the website <http://www.etenders.hry.nic.in> to be eligible to participate in the e-Tender. **He/She will be required to make online payment of (as mentioned above) towards EMD fee in due course of time. The intended bidder fails to pay EMD fee under the stipulated time frame shall not be allow to submit his / her bids for the respective event / Tenders.**
- The interested bidders must remit the funds at least T+1 working day (Transaction day + One working Day) in advance i.e. **on or before (as mentioned above); and make payment via NETBANKING/NEFT/RTGS to the beneficiary account number specified under the online generated challan. The intended bidder / Agency thereafter will be able to successfully verify their payment online, and submit their bids on or before the expiry date & time of the respective events/Tenders at <http://www.etenders.hry.nic.in>.**

The Bidders can submit their tender documents (Online) as per the dates mentioned in the key dates:-

Key Dates

Sr. No.	Department Stage	Bidder's Stage	Start date and time	Expiry date and time
1		Tender Document Download and Bid Preparation/Submission	04.03.2024	Upto 26.03.2024 (03:00 P.M)
2	Technical Bid Opening		27.03.2024 (03:00 P.M.)	
3	Financial Bid Opening		To be announced later	

* Hard copy of the Technical Documents may be submitted in the office of the Executive Engineer before the Technical Bid Opening.

Important Note:

- 1)The Applicants/bidders have to complete 'Application / Bid Preparation & Submission' stage on scheduled time as mentioned above. If any Applicant / bidder failed to complete his / her aforesaid stage in the stipulated online time schedule for this stage, his / her Application/bid status will be considered as 'Applications / bids not submitted'.
- 2)Applicant/Bidder must confirm & check his/her Application/bid status after completion of his/her all activities for e-bidding.
- 3)Applicant/Bidder can rework on his/her bids even after completion of 'Application/Bid Preparation & submission stage' (Application/Bidder Stage), subject to the condition that the rework must take place during the stipulated time frame of the Applicant/Bidder Stage.
- 4)In the first instance, the online payment details of tender document fee + e-Service and EMD & PQQ/Technical Envelope shall be opened. Henceforth financial bid quoted against each of the item by the shortlisted bidder/ Agency wherever required shall be opened online in the presence of such bidders/ Agency who either themselves or through their representatives choose to be present. The bidder can submit online their bids as per the dates mentioned in the schedule/Key Dates above.

The bids shall be submitted online in two separate envelopes:

Envelope 1: Technical Bid

The bidders shall upload the required eligibility & technical documents online in the Technical Bid.

Envelope 2: Commercial Bid

The bidders shall quote the prices in price bid format under Commercial Bid.

CONDITIONS:

1. The tenderer will keep in touch with the University Web site for any change in the NIT/DNIT till the last date/revised last date of online invited tender and incorporate such changes in NIT/DNIT and the tender bids.
2. DNIT & prequalification criteria can be seen on any working day during office hours in office of the undersigned.
3. Conditional tenders will not be entertained & are liable to be rejected.
4. In case the day of opening of tenders happens to be holiday, the tenders will be opened on the next working day. The time and place of receipt of tenders and other conditions will remain unchanged.
5. The MDU, Rohtak reserve the right to reject any tender or all the tenders without assigning any reasons.
6. The societies shall produce an attested copy of the resolution of the Co-operative department for the issuance of tenders.
7. The tender without earnest money/bid security will not be opened.
8. The Jurisdiction of court will be at **Rohtak**.
9. The tender of the bidder who does not satisfy the qualification criteria in the bid documents are liable to be rejected summarily without assigning any reason and no claim whatsoever on this account will be considered.
10. The bid for the work shall remain open for acceptance during the bid validity period to be reckoned from the last date of submission of the tender. If any bidder/tenders withdraws his bid/tender before the said period or makes any modifications in the terms and conditions of the bid, during the fix validity period, the earnest money shall stand forfeited. Bids shall be valid for 120 days from the date of bid closing i.e. from last date of submission of EMD. In case the last day to accept the tender happens to be holiday, validity to accept tender will be the next working day.
11. Any work, here tendered, may be withdrawn from further processing at any stage at the discretion of the competent authority without assigning any reason.
12. Engineer-in-Charge is competent to increase/decrease the quantity of work. In case of decrease of quantity, the contractor shall have no claim to any payment or compensation whatsoever on account of any profit or advantage which he might have derived from the execution of the work in full.
13. The University reserves the right to accept or reject or negotiate any of the tender or conditions/items without assigning any reason.
14. Plumbing and E.I work shall be got done through license holder agencies for the works involving PH/E.I.
15. Every Contractor shall-
 - (i) In relation to an establishment to which Act applies on its commencement, within a period of 60 days from such commencement ; and
 - (ii) In relation to any other establishment to which Act may be applicable at any time after such commencement, within a period of 60 days from the date on which this Act becomes applicable to such establishment , make an application to the registering officer for the registration of establishment;
Further, the first running bill of the contractor shall be cleared only after the receipt of registration certificate under the Building & Other Construction Workers Welfare (RE&CS) Act, 1996 and registration of all the eligible construction workers as a beneficiary of the Haryana Building & Other Construction Worker Welfare Board.
16. **Standard Bidding Document will be applicable wherever required.**

**For & on behalf of Registrar, MDU, Rohtak.
Executive Engineer
MDU, Rohtak.**

Endst. No. EE/2024/

Dated :

Copy forwarded to the following for information and necessary action:

1. Superintendent Engineer, PWD & BR Circles, Rohtak
2. Technical Advisor to VC, MDU, Rohtak.
3. Executive Engineer , MDU, Rohtak.
4. Executive Engineer, PWD & BR (Medical College), Rohtak/ KUK /HAU, Hisar/ GJU, Hisar/ CDLU, Sirsa/ BPS Women University, Khanpur/ DBSCRU, Murthal/ Indira Gandhi University, Meerpur (Rewari)/ Ch. Bansilal University, Bhiwani/ Chaudhary Ranbir Singh University, Jind.
5. P.A to Vice-Chancellor (for kind information of the worthy Vice-Chancellor), MDU, Rohtak.
6. P.A to Registrar (for kind information of Registrar), MDU, Rohtak.
7. SDE (C-II,III) /SDE (Elect)/ SDE (PH)/ SDE (Horti-I,II), MDU, Rohtak
8. Divisional Accountant/H.D.M, Engineering Cell, MDU, Rohtak.
9. Notice Board.

Name of work: Design and SITC of 1.5 Megawatt grid connected roof top solar power plant including Operation and Comprehensive Maintenance (O&M) under RESCO mode at various buildings in MDU Rohtak

A. GENERAL

1 Scope of Bid

Introduction

- 1.1. Maharishi Dayananad University, Rohtak intends to develop grid connect rooftop solar PV project at the various rooftops of the buildings under RESCO model. The projects to be installed will be grid connect through net-metering system.
- 1.2. The work targets installation of grid-connected roof top solar PV projects on the roofs of various Institutional buildings of University. The generated solar power may be utilized for captive application and the surplus power will be fed to the grid. The scheme aims to reduce the fossil fuel-based electricity load on main grid and make building self-sustainable from the point of electricity, to the extent possible.
- 1.3. Maharishi Dayananad University, Rohtak, which expression shall also include its successors and permitted assigns, hereby invites interested companies to participate in the bidding process for the selection of Successful Bidder(s) for implementation of grid-connected roof top Solar Photovoltaic Projects at University campus indicated herein under.
- 1.4. The Bidder is advised to read carefully all instructions and conditions appearing in this document and understand them fully. All information and documents required as per the bid document must be furnished. Failure to provide the information and / or documents as required may render the bid technically unacceptable. The bidder shall be deemed to have examined the bid document, to have obtained his own information in all matters whatsoever that might affect the carrying out the works in line with the scope of work specified elsewhere in the document at the offered rates and to have satisfied himself to the sufficiency of his bid. The bidder shall be deemed to know the scope, nature and magnitude of the works and requirement of materials, equipment, tools and labour involved, wage structures and as to what all works he has to complete in accordance with the bid documents irrespective of any defects, omissions or errors that may be found in the bid documents
- 1.5. The successful bidder will be expected to complete the works by the intended completion date specified in the Contract data.

2. Bid Details

The bidding process under this bid document of the rooftop scheme is for 1.5 MWp for RESCO Model. Bids are invited from the prospective bidders for the tendered capacity as indicated based on the levelled tariff for RESCO Model for the allocated capacity.

3. Source of Funds

The expenditure on this project will be met from the bidder under RESCO mode for 25 year Power Purchase Agreement (PPA).

4. Qualification of the Bidder

4.1 All bidders shall include the following information and documents with their bids:

- a) Copies of original documents defining the constitution or legal status, place of registration, Pan Card and principal place of business, written power of attorney of the signatory of the Bid to commit the Bidder.
- b) Total monetary value of work performed for each of the last seven years.
- c) Experience in works of similar nature and size for each of the last **three** years and details of work underway or contractually committed, and clients who may be contacted for further information on those contracts.
- d) qualifications and experience of key site management and technical personnel proposed for Contract:
- e) Reports on the financial standing of Bidder, such as profit and loss statements and auditor's reports for the past **three** years.
- f) information regarding any litigation, current or during the last five years, in which the Bidder is involved, the parties concerned, and disputed amount;

5. Qualification Criteria

To qualify for award of the contract, each bidder in its name should have in the last five years as referred to in Appendix.

- a) The applicant should have experience of having successfully completed similar works during last 7 years ending last day of month previous to the one in which applications are invited should be either of the following:
 - i. Three similar works each capacity not less than the amount equal to 40% of the estimated capacity.
 - ii. Two similar works each capacity not less than the amount equal to 50% of the estimated capacity.
 - iii. One similar work capacity not less than the amount equal to 80% of the estimated capacity. Cost of work shall mean gross value of the completed work including the cost of materials supplied by the Govt. / Client, but excluding those supplied free of cost. This should be certified by an officer not below the rank of Executive Engineer/ Project Manager or equivalent (calculated on the basis of 10% value added compounded per year).
- b) The applicant should have minimum Average Annual financial turnover during the last 3 years, ending 31st March of the previous financial year, should be at least 5 crore. This should be duly audited by a Chartered Accountant (10% compounded value per year to be added)
- c) The applicant should have not incurred any loss in more than three years during the last five years ending last day of tender duly certified by the Chartered Accountant.
- d) The contractor or his identified sub-contractor should possess required valid license for executing the water supply/sanitary/electrical engineering works and should have executed similar water supply/sanitary/electrical engineering works.
- e) The applicant's performance for each work completed in the last 7 years and in hand should be certified by an officer not below the rank of Executive Engineer/Project manager or equivalent and should be obtained in sealed cover.
- f) Joint Venture (JV) is also allowed as per format at Annexure-I &II.

6. Scope of Work

The scope of work for the bidder include SITC of 1.5 MW grid connected rooftop solar power plant with grid connectivity, complete design, engineering, manufacture, supply, storage, civil work, erection, testing & commissioning of the grid connected rooftop solar PV project including operation and maintenance (O&M) of the project for a period of Twenty Five years after commissioning.

7. Levelized Tariff

1. The Levelized tariff shall include all the costs related to above Scope of Work. Bidder shall quote for the entire facilities on a “single responsibility” basis such that the total Bid Price covers all the obligations mentioned in the Bidding Documents in respect of Design, Supply, Erection, Testing and Commissioning including Warranty, Operation & Maintenance for a period of 25 years under RESCO model, goods and services including spares required if any during O&M period. The Bidder has to take all permits, approvals and licenses, Insurance etc., provide training and such other items and services required to complete the scope of work mentioned above.
 - i. The levelized tariff quoted is on lump sum turnkey basis and the bidder is responsible for the total Scope of Work described in bid document.
 - ii. The levelized tariff shall remain firm and fixed and shall be binding on the Successful Bidder till completion of work. No escalation will be granted on any reason whatsoever. The bidder shall not be entitled to claim any additional charges, even though it may be necessary to extend the completion period for any reasons whatsoever.
 - iii. The levelized tariff shall be inclusive of all duties and taxes, insurance etc .The prices quoted by the firm shall be complete in all respect and no price variation /adjustment shall be payable
 - iv. The operation & maintenance of Solar Photovoltaic Power Plant would include wear, tear, overhauling, machine breakdown, insurance, and replacement of defective modules, invertors / Power Conditioning Unit (PCU), spares, consumables & other parts for a period of 25 years under RESCO model.

8. Insurance

- i. The Bidder shall be responsible and take an Insurance Policy for transit-cum- storage-cum-erection for all the materials to cover all risks and liabilities for supply of materials on site basis, storage of materials at site, erection, testing and commissioning. The bidder shall also take appropriate insurance during O&M period.
- ii. The Bidder shall also take insurance for Third Party Liability covering loss of human life, engineers and workmen and also covering the risks of damage to the third party/material/equipment/properties during execution of the Contract. Before commencement of the work, the Bidder will ensure that all its employees and representatives are covered by suitable insurance against any damage, loss, injury or death arising out of the execution of the work or in carrying out the Contract. Liquidation, Death, Bankruptcy etc., shall be the responsibility of bidder.

9. Warrantees and Guarantees

- i. The Bidder shall warrant that the goods supplied under this contract are new, unused, of the most recent or latest technology and incorporate all recent improvements in design and materials.
2. Type and Quality of Materials and Workmanship
 - i. The Design, engineering, manufacture, supply, installation, testing and performance of the equipment shall be in accordance with latest appropriate IEC/Indian Standards as detailed in (Technical specifications) of the bid document. Where appropriate Indian Standards and Codes are not available, other suitable standards and codes as approved by the MNRE shall be used.
 - ii. The specifications of the components should meet the technical specifications mentioned.
 - iii. Any supplies which have not been specifically mentioned in this Contract but which are necessary for the design, engineering, manufacture, supply & performance or completeness of the project shall be provided by the Bidder without any extra cost and within the time schedule for efficient and smooth operation the SPV plant.

10. Operation & Maintenance (O&M)

- i. The bidder shall be responsible for Operation and Maintenance of the Roof top Solar PV system for a period of 25 years, during which Maharishi Dayanand University will monitor the project for effective performance in line with conditions specified elsewhere in the bid document. During this period, the bidder shall be responsible for supply of all spare parts as required from time to time for scheduled and preventive maintenance, major overhauling of the plant, replacement of defective modules, inverters, PCU's , cleaning of solar panels etc and maintaining log sheets for operation detail, deployment of staff for continuous operations and qualified engineer for supervision of O&M work, complaint logging & its attending.

The developer is responsible for the water proofing of the roof disturbed / pierced for installation of Solar Power System for the whole O&M period (25 Years). To ensure the water proofing, a third party inspection jointly with power producer and power purchaser will be conducted annually. The developer should immediately take necessary action to repair any damage to the water proofing. University may impose suitable penalty for the delay caused to resolve the issue

11. Metering and Grid Connectivity

Metering and grid connectivity of the roof top solar PV system under this project would be the responsibility of the Bidder in accordance with the prevailing guidelines of the concerned DISCOM. Maharishi Dayanand University could facilitate connectivity, however the entire responsibility lies with bidder only.

12. Plant Performance Evaluation

The successful bidder shall be required to meet minimum guaranteed generation with Performance Ratio (PR) at the time of commissioning and related Capacity Utilization Factor (CUF) as per the GHI levels of the location during the O&M period. PR should be shown minimum of 75% at the time of inspection for initial commissioning acceptance. Minimum CUF of 20% should be maintained for a period of 5years. The bidder should send the periodic plant output details to Maharishi Dayanand University for ensuring the CUF. The PR will be measured at Inverter output level during peak radiation conditions.

13. Progress Report

The bidder shall submit the progress report monthly to Maharishi Dayanand University in prescribed proforma. Maharishi Dayanand University will have the right to depute his/their representatives to ascertain the progress of contract at the premises of works of the bidder.

14. Project inspection

The project will be monitored by Maharishi Dayanand University and the projects will be inspected for quality at any time during commissioning or after the completion of the project either by officer(s) from University or any authorized agency/ experts.

Maharishi Dayanand University reserves the right to do sample inspection checks for the projects commissioned by the Bidder.

Maharishi Dayanand University may also depute a technical person(s) from its list of empanelled experts for inspection, Third party verification, monitoring of system installed to oversee, the implementation as per required standards and also to visit the manufactures facilities to check the quality of products as well as to visit the system integrators to assess their technical capabilities as and when required.

TECHNICAL SPECIFICATIONS

The proposed projects shall be commissioned as per the technical specifications given below. Any shortcomings will lead to cancelation of work in full or part as decided by Competent Authority's decision will be final and binding on the bidder.

1. Definition

A Grid Tied Solar Rooftop Photo Voltaic (SPV) power plant consists of SPV array, Module Mounting Structure, Power Conditioning Unit (PCU) consisting of Maximum Power Point Tracker (MPPT), Inverter, and Controls & Protections, interconnect cables and switches. PV Array is mounted on a suitable structure. Grid tied SPV system is without battery and should be designed with necessary features to supplement the grid power during day time. Components and parts used in the SPV power plants including the PV modules, metallic structures, cables, junction box, switches, PCUs etc., should conform to the BIS or IEC or international specifications, wherever such specifications are available and applicable.

Solar PV system shall consist of following equipments/components.

- Solar PV modules consisting of required number of mono / poly Crystalline PV modules.
- Grid interactive Power Conditioning Unit with Remote Monitoring System
- Mounting structures
- Junction Boxes.
- Earthing and lightning protections.
- IR/UV protected PVC Cables, pipes and accessories

a. Solar Photovoltaic Modules

- i. The PV modules used must qualify to the latest edition of IEC PV module qualification test or equivalent BIS standards Crystalline Silicon Solar Cell Modules IEC 61215/IS14286. In addition, the modules must conform to IEC 61730 Part-2-requirements for construction & Part 2 — requirements for testing, for safety qualification or equivalent IS.
 - a) For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701/IS 61701.
 - b) The total solar PV array capacity should not be less than allocated capacity (kWp) and should comprise of solar crystalline modules of minimum 330 Wp and above wattage. Module capacity less than minimum 330 watts should not be accepted
 - c) Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided.
 - d) PV modules must be tested and approved by one of the IEC authorized test centers.
 - e) The module frame shall be made of corrosion resistant materials, preferably having anodized aluminum.
 - f) The bidder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power in his bid. Maharishi Dayananad University shall not allow any wastage of roof top space at the time of execution.
 - g) Other general requirement for the PV modules and subsystems shall be the Following:
 - I. The rated output power of any supplied module shall have tolerance of +/- 3%.
 - II. The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary by more than 2 (two) per cent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
 - III. 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.
 - IV. I-V curves at STC should be provided by bidder.
- ii. Modules deployed must use a RF identification tag. The following information must be mentioned in the RFID used on each modules (This can be inside or outside the laminate, but must be able to withstand harsh environmental conditions).
 - a) Name of the manufacturer of the PV module
 - b) Name of the manufacturer of Solar Cells.
 - c) Month & year of the manufacture (separate for solar cells and modules)
 - d) Country of origin (separately for solar cells and module)
 - e) I-V curve for the module Wattage, I_m , V_m and FF for the module
 - f) Unique Serial No and Model No of the module
 - g) Date and year of obtaining IEC PV module qualification certificate.
 - h) Name of the test lab issuing IEC certificate.
 - i) Other relevant information on traceability of solar cells and module as per ISO9001 and ISO 14001
- iii. Warranties:

a) Material Warranty:

- i. Material Warranty is defined as: The manufacturer should warranty the Solar Module(s) to be free from the defects and/or failures specified below for a period not less than Twenty five (25) years from the date of sale to the original customer ("Customer")
- ii. Defects and/or failures due to manufacturing
- iii. Defects and/or failures due to quality of materials
- iv. Non conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the agency will repair or replace the solar module(s), at its own cost.

b) Performance Warranty:

- iv. The predicted electrical degradation of power generated not exceeding 20% of the minimum rated power over the 25 year period and not more than 10% after ten years period of the full rated original output.

2. Array Structure

- a) Hot dip galvanized MS mounting structures may be used for mounting the modules/ panels/arrays. Each structure should have angle of inclination as per the site conditions to take maximum insolation. However to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.
- b) The Mounting structure shall be so designed to withstand the speed for the wind zone of Rohtak where a PV system is proposed to be installed. It may be ensured that the design has been certified by a recognized Lab/ Institution in this regard and submit wind loading calculation sheet to Maharishi Dayananad University. Suitable fastening arrangement such as grouting and calming should be provided to secure the installation against the specific wind speed.
- c) The mounting structure steel shall be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance of latest IS 4759.
- d) Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. Aluminium structures also can be used which can withstand the wind speed of respective wind zone. Necessary protection towards rusting need to be provided either by coating or anodization.
- e) The fasteners used should be made up of stainless steel. The structures shall be designed to allow easy replacement of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels
- f) Regarding civil structures the bidder need to take care of the load bearing capacity of the roof and need arrange suitable structures based on the quality of roof.
- g) The total load of the structure (when installed with PV modules) on the terrace should be less than 60 kg/m².
- h) The minimum clearance of the structure from the roof level should be 300 mm.

3. Junction Boxes (JBs)

- a) The junction boxes are to be provided in the PV array for termination of connecting cables. The J. Boxes (JBs) shall be made of GRP/FRP/Powder Coated Aluminium /cast aluminium alloy with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JB's shall be such that input & output termination can be made through suitable cable glands.
- b) Copper bus bars/terminal blocks housed in the junction box with suitable termination threads conforming to IP65 standard and IEC 62208 Hinged door with EPDM rubber gasket to prevent water entry. Single / double compression cable

glands. Provision of earthings. It should be placed at 5 feet height or above for ease of accessibility.

- c) Each Junction Box shall have High quality Suitable capacity Metal Oxide Varistors (MOVs) / SPDs, suitable Reverse Blocking Diodes. The Junction Boxes shall have suitable arrangement monitoring and disconnection for each of the groups.
- d) Suitable markings shall be provided on the bus bar for easy identification and the cable ferrules must be fitted at the cable termination points for identification

4. DC 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.

5. AC Distribution Panel Board

- a) 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.
- b) All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS60947 part I, II and III.
- c) The changeover switches, cabling work should be undertaken by the bidder as part of the project.
- d) All the Panel's shall be metal clad, totally enclosed, rigid, floor mounted, air - insulated, cubical type suitable for operation on three phase / single phase, 415 or 230 volts, 50 Hz
- e) The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.
- f) All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.
- g) Should conform to Indian Electricity Act and rules (till last amendment).
- h) All the 415 AC or 230 volts devices / equipment like bus support insulators, circuit breakers, SPDs, VTs etc., mounted inside the switchgear shall be suitable for continuous operation and satisfactory performance under the following supply conditions

Variation in supply voltage	+/- 10 %
Variation in supply frequency	+/- 3 Hz

6. PCU/Array Size Ratio

- a) The combined wattage of all inverters should not be less than rated capacity of power plant under STC.
- b) Maximum power point tracker shall be integrated in the PCU/inverter to maximize energy drawn from the array.

7. 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 PCU shall also house MPPT (Maximum Power Point Tracker), an interface between Solar PV array & the Inverter, to the power conditioning unit/inverter should also be DG set interactive. If necessary. Inverter output should be compatible with the grid frequency. Typical technical features of the inverter shall be as follows:

- Switching devices: IGBT/MOSFET
- Control: Microprocessor /DSP
- Nominal AC output voltage and frequency: 415V, 3 Phase, 50 Hz (In case single phase inverters are offered, suitable arrangement for balancing the phases must be made.)
- Output frequency: 50 Hz
- Grid Frequency Synchronization range: + 3 Hz or more
- Ambient temperature considered: -20o C to 50o C
- Humidity: 95 % Non-condensing
- Protection of Enclosure: IP-20(Minimum) for indoor.
IP-65(Minimum) for outdoor.\
- Grid Frequency Tolerance range: + 3 or more
- Grid Voltage tolerance: - 20% & + 15 %
- No-load losses: Less than 1% of rated power
- Inverter efficiency(minimum): >93% (In case of 10kW or above)
- Inverter efficiency (minimum): > 90% (In case of less than 10 kW)
- THD: < 3%
- PF: > 0.9

- a) Three phase PCU/ inverter shall be used with each power plant system (10kW and/or above).
- b) PCU/inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown.
- c) The output of power factor of PCU inverter is suitable for all voltage ranges or sink of reactive power, inverter should have internal protection arrangement against any sustainable fault in feeder line and against the lightning on feeder.
- d) Built-in meter and data logger to monitor plant performance through external computer shall be provided.
- e) The power conditioning units / inverters should comply with applicable IEC/ equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683/IS 61683 and IEC 60068-2(1,2,14,30)/Equivalent BIS Std.
- f) The charge controller (if any) / MPPT units environmental testing should qualify IEC 60068-2(1, 2, 14, 30)/Equivalent BIS std. The junction boxes/ enclosures should be IP 65(for outdoor)/ IP 54 (indoor) and as per IEC 529 specifications.
- g) The PCU/ inverters should be tested from the MNRE approved test centres / NABL /BIS /IEC accredited testing- calibration laboratories. In case of imported powerconditioning units, these should be approved by international test houses.

8. 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. 4 pole isolation of inverter output with respect to the grid/ DG power connection need to be provided.

9. Data Acquisition System / Plant Monitoring

- i. Data Acquisition System shall be provided for each of the solar PV plant.
- ii. Data Logging Provision for plant control and monitoring, time and date stamped system data logs for analysis with the high quality, suitable PC.
- iii. and Instrumentation for display of systems parameters and status indication to be provided.
- iv. Solar Irradiance: An integrating Pyranometer / Solar cell based irradiation sensor (along with calibration certificate) provided, with the sensor mounted in the plane of the array. Readout integrated with data logging system.
- v. Temperature: Temperature probes for recording the Solar panel temperature and/or ambient temperature to be provided complete with readouts integrated with the data logging system
- vi. The following parameters are accessible via the operating interface display in real time separately for solar power plant:
 - a. AC Voltage.
 - b. AC Output current.
 - c. Output Power
 - d. Power factor.
 - e. DC Input Voltage.
 - f. DC Input Current.
 - g. Time Active.
 - h. Time disabled.
 - i. Time Idle.
 - j. Power produced
 - k. Protective function limits (Viz-AC Over voltage, AC Under voltage, Over frequency, Under frequency ground fault, PV starting voltage, PV stopping voltage.
- vii. All major parameters available on the digital bus and logging facility for energy auditing through the internal microprocessor and read on the digital front panel at any time) and logging facility (the current values, previous values for up to a month and the average values) should be made available for energy auditing through the internal microprocessor and should be read on the digital front panel.
- viii. PV array energy production: Digital Energy Meters to log the actual value of AC/ DC voltage, Current & Energy generated by the PV system provided. Energy meter along with CT/PT should be of 0.2/0.5 accuracy class.
- ix. Computerized DC String/Array monitoring and AC output monitoring shall be provided as part of the inverter and/or string/array combiner box or separately.
- x. String and array DC Voltage, Current and Power, Inverter AC output voltage and current (All 3 phases and lines), AC power (Active, Reactive and Apparent), Power Factor and AC energy (All 3 phases and cumulative) and frequency shall be monitored.
- xi. Computerized AC energy monitoring shall be in addition to the digital AC energy meter.
- xii. The data shall be recorded in a common work sheet chronologically date wise. The data file shall be MS Excel compatible. The data shall be represented in both tabular and graphical form.
- xiii. All instantaneous data shall be shown on the computer screen.
- xiv. Software shall be provided for USB download and analysis of DC and AC parametric data for individual plant.
- xv. Provision for Internet monitoring and download of data shall be also incorporated.
- xvi. Remote Server and Software for centralized Internet monitoring system shall be also provided for download and analysis of cumulative data of all the plants and the data of the solar radiation and temperature monitoring system.
- xvii. Ambient / Solar PV module back surface temperature shall be also monitored on continuous basis.
- xviii. Simultaneous monitoring of DC and AC electrical voltage, current, power, energy and

other data of the plant for correlation with solar and environment data shall be provided.

- xix. Remote Monitoring and data acquisition through Remote Monitoring System software at the with latest software/hardware configuration and service connectivity for online / real time data monitoring/control complete to be supplied and operation and maintenance/control to be ensured by the supplier. Provision for interfacing these data on University server and portal in future shall be kept.

10. METERING

- a) The bidirectional electronic energy meter (0.2/0.5 S class) shall be installed for the measurement of import/Export of energy.
- b) The bidder must take approval/NOC from the Concerned DISCOM for the connectivity, technical feasibility, and synchronization of SPV plant with distribution network and submit the same to Maharishi Dayanand University before commissioning of SPV plant.
- c) Reverse power relay shall be provided by bidder (if necessary), as per the local DISCOM requirement.
- d) The meter will be read by power producer's personnel on the metering date. The authorized representative of the purchaser shall be present at the time of meter reading. Both the parties shall sign a joint meter reading report every month.
- e) The main metering system at the delivery point and any additional meters required by applicable law shall be tested, maintained and owned by the power producer. In case of malfunctioning of main metering system at delivery point, deemed generation shall be paid upto 3 days only, and after that no payment shall be made till meter is replaced by new one or repaired.
- f) The power producer shall connect the solar output to the existing system as per the requirement of University.

11. Protection

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

- a. 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 IEC62305 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.

- b. Surge Protection Internal surge protection shall consist of three MOV type surge-arrestors connected from +ve and -ve terminals to earth (via Y arrangement)
- c. Earthing Protection

- i. Each array structure of the PV yard should be grounded/ earthed properly as per IS:3043-1987. In addition the lightning arrester/masts should also be earthed inside the array field. Earth Resistance shall be tested in presence of the representative of Department/Agra Smart City Limited as and when required after earthing by calibrated earth tester. PCU, ACDB and DCDB should also be earthed properly.
 - ii. 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.
- d. Grid Islanding
- i. 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.

- ii. A manual disconnect 4pole 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

12. Cables

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

- i. Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards
- ii. Temp. Range: -10°C to $+80^{\circ}\text{C}$.
- iii. Voltage rating 660/1000V
- iv. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation
- v. Flexible
- vi. Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum. The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use.
- vii. Cable Routing/ Marking: All cable/wires are to be routed in a GI cable tray and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable easily identified.
- viii. The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e. 25years.
- ix. The ratings given are approximate. Bidder to indicate size and length as per system design requirement. All the cables required for the plant provided by the bidder. Any change in cabling sizes if desired by the bidder/approved after citing appropriate reasons. All cable schedules/layout drawings approved prior to installation.
- x. Multi Strand, Annealed high conductivity copper conductor PVC type ‘A’ pressure extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armoured cable for underground laying. All cable trays including covers to be provided. All cables conform to latest edition of IEC/ equivalent BIS Standards as specified below: BoS item / component Standard Description Standard Number Cables General Test and Measuring Methods, PVC/XLPE insulated cables for working Voltage up to and including 1100 V, UV resistant for outdoor installation IS /IEC 69947.
- xi. The size of each type of DC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 1%.

- xii. The size of each type of AC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 2 %.

13. Danger Boards and Signages

Danger boards should be provided as and where necessary as per IE Act. /IE rules as amended up to date.

14. Fire Extinguishers

The firefighting system for the proposed power plant for fire protection shall be consisting of:

- a) Portable fire extinguishers in the control room for fire caused by electrical short circuits
- b) Sand buckets in the control room
- c) The installation of Fire Extinguishers should confirm to TAC regulations and BIS standards. The fire extinguishers shall be provided in the control room housing PCUs as well as on the Roof or site where the PV arrays have been installed.

15. Drawings & Manuals

- i. Two sets of Engineering, electrical drawings and Installation and O&M manuals are to be supplied. Bidders shall provide complete technical data sheets for each equipment giving details of the specifications along with make/makes in their bid along with basic design of the power plant and power evacuation, synchronization along with protection equipment.
- ii. Approved ISI and reputed makes for equipment be used.
- iii. For complete electro-mechanical works, bidders shall supply complete design, details and drawings for approval to Maharishi Dayanand University before progressing with the installation work

16. Planning and Designing

- i. The bidder should carry out Shadow Analysis at the site and accordingly design strings & arrays layout considering optimal usage of space, material and labor. The bidder should submit the array layout drawings along with Shadow Analysis Report for approval.
- ii. University reserves the right to modify the landscaping design, Layout and specification of sub-systems and components at any stage as per local site conditions/requirements.
- iii. The bidder shall submit preliminary drawing for approval & based on any modification or recommendation, if any. The bidder submit three sets and soft copy in CD of final drawing for formal approval to proceed with construction work.

17. Drawings to be Furnished by Bidder after Award of Contract

- i. The Contractor shall furnish the following drawings Award/Intent and obtain approval
- ii. General arrangement and dimensioned layout
- iii. Schematic drawing showing the requirement of SV panel, Power conditioning Unit(s)/ inverter, Junction Boxes, AC and DC Distribution Boards, meters etc.
- iv. Structural drawing along with foundation details for the structure.
- v. Itemized bill of material for complete SV plant covering all the components and associated accessories.
- vi. Layout of solar Power Array
- vii. Shadow analysis of the roof

18. Solar PV System on the Rooftop for Meeting the Annual Energy Requirement

The Solar PV system on the rooftop of the selected buildings will be installed for meeting upto 90% of the annual energy requirements depending upon the area of rooftop available and the remaining energy requirement of the office buildings will be met by drawing power from grid at commercial tariff of DISCOMs.

19. 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.

20. Annual Production gaurantee

The annual production for each year of the initial term is set forth in below schedule, which is considered as generation guarantee. If the actual power generated by producer is found lower than the permissible units fixed in this schedule than producer shall be liable to pay compensation to the University the cost of deficit units at the actual difference between the rates of these units & the rates of the power charged by UHBVN applicable at that time.

Annual Production Gaurantee for 25 Years	
Year	Minimum Annual Generation Gaurantee for 1.5 MWp in KWh
1	2066802
2	2046138
3	2025678
4	2005422
5	1985370
6	1965318
7	1945470
8	1925820
9	1906368
10	1887114
11	1868052
12	1849188
13	1830510
14	1812024
15	1793718
16	1775604
17	1757670
18	1739916
19	1722342
20	1704948

21	1687728
22	1670682
23	1653810
24	1637106
25	1620576

21. Tariff and Payments

Purchaser shall pay to the power producer a bi-monthly payment for the solar power generated by the system as per the metering during each calendar month of the Term equal to the actual monthly production as recorded on joint meter reading report for the system. The power producer will bill the purchaser for each KWh metered at the delivery point. The financial year considered for billing shall be April 1st to 31st March of every year.

ADDITIONAL CONDITIONS

1. Bidder has to obtain all the necessary approvals /Consents/Clearances required for Erection, Testing, Commissioning and O&M of the project including Grid connectivity. Maharishi Dayananad University shall not have any responsibility in this regard.
2. During grid failure, the SPV system stops generating. Any instances of grid failure need to be mentioned in the monthly report and those instances need to be authorised by University Engineer.
3. Performance security sum Rs. 20,00,000/- will be deposited by the bidder within 15 days after allotment of work in the shape of
 - (i) Bank guarantee
 - (ii) FDR of nationalized Bank which will be refunded as under:-
 - (a) 50% of performance security will be refunded after installation of plant and successful commissioning of project atleast for three months.
 - (b) Balance 50% performance security will be refunded after three years of successful operation of plant.
4. The work should be carried out strictly as per MNRE (Ministry of New and Renewable Energy) latest guidelines/policies etc. as amended time to time.

Penalty for Delay in Project Implementation

1. Executive Engineer, MDU will issue the sanction letter(s) for the Project (s) in line with the provisions of the tender document. The Bidder shall complete the project identification, design, engineering, manufacture, supply, storage, civil work, erection, testing & commissioning of each project within 6 months from the date of issue of allocation letter.

2. If the bidder fails to commission the allocated capacity within 6 months from date of issue of allocation letter, Penalty on per day basis calculated for the Performance Security on a 6 months period would be levied. After 6 months allocated capacity will get cancelled and the PBG amount pro-rata to non- commissioned capacity would be forfeited.

Example: If a project of 500 kW is delayed by 36 days then the LD will be levied as given below.

$$\begin{aligned}
 \text{PENALTY} &= ((\text{Performance Security})/180 \text{ days}) \times \text{delayed days} \\
 &= (3,50,000 / 180) \times 36 \\
 &= \text{Rs.}70,000.
 \end{aligned}$$

Time of Completion of Allocated Capacity

1. Project completion shall be 6 months from the date of issue of allocation letter. Failure of non- compliance of same shall lead to forfeiture of PBG for that State in proportion to the capacity not identified.
2. The period of construction given in Time Schedule includes the time required for mobilisation as well as testing, rectifications if any, retesting and completion in all respects to the entire satisfaction of the Engineer-in- Charge.
3. A joint programme of execution of the Work will be prepared by the Engineer- in-Charge or its representative nominated for the purpose and Successful bidders based on priority requirement of this project. This programme will take into account the time of completion and the time allowed for the priority Works by the Engineer-in-Charge.
4. Monthly/Weekly implementation programme will be drawn up by the Engineer-in-Charge jointly with the Successful bidder, based on availability of Work fronts. Successful bidder shall scrupulously adhere to these targets/programmes by deploying adequate personnel, tools and tackles and he shall also supply himself all materials of his scope of supply in good time to achieve the targets/programmes. In all matters concerning the extent of targets set out in the weekly and monthly programmes and the degree of achievements, the decision of the Engineer- in-Charge will be final and binding.

DETAILED NOTICE INVITING TENDER

Name of the work: Design and SITC of 1.5 Megawatt grid connected roof top solar power plant including Operation and Comprehensive Maintenance (O&M) under RESCO mode at various buildings in MDU Rohtak.

Item No.	Item Description	Amount quoted by contractor including all taxes for per KWh for 25 years
1	Levellised tariff for 1.5 MWp grid connected roof top solar power plant on different buildings in University for 25 years	

Contractor

Witness

Employer

TECHNICAL DOCUMENTS

Sr. No	Description	Bidders Response (Yes/No) and submit/attach online all the documents while applying online bid
1	Proof of the agency/Authorized Dealer /Manufactures/ Supplier/Contractor/ Cooperative Labour and Construction Societies dealing with similar nature of work.	
2	Successfully work done certificates of similar nature of works in Govt. Departments during last 7 financial years as under:- One certificate of 80% of the estimated capacity of this tender. Or Two certificates of 50% of the estimated capacity of this tender Or Three certificates of 40% of the estimated capacity of this tender.	
3	Copy of PAN card and GST No.	
4	Copy of 3 year income tax return.	
5	CA certified average annual turnover certificate of atleast 5 Crores in last 3 years.	
6	Copy of CA certified 3 year balance sheets	
7	List of work done in Govt. Department.	
8	Experience Certificate/ Supply order in Govt. Deptt.	
9	Address of the agency/contractor with Contact No. (complete details should be filled by the agencies/contractors while apply online bid)	

ANNEXURE-I**Format for Joint Venture Agreement**

(on non-judicial stamp paper of appropriate value to be purchased in the name of executants companies or as required by the jurisdiction in which executed)

This Joint Venture Agreement executed on this.....day of..... Two Thousand.....By:

M/s. a Company/Partnership Firm/ Sole Proprietorship Organization incorporated under the Act/Laws ofand having its Registered/Head Office at.....(hereinafter called the "Lead Member/First Member" which expression shall include its successors); and

M/s. a Company/Partnership Firm/Sole Proprietorship Organisation incorporated under the Act/Laws ofand having its Registered/Head office at..... (hereinafter called the "Second Member" which expression shall include it successors).

The Lead Member/First Member and the Second Member shall collectively hereinafter be called as the "Joint Venture" for the purpose of submitting a bid proposal to Maharshi Dayanand University, Rohtak (Hereinafter referred to as MDU), being,,,,,, (hereinafter called the "Client") in response to the invitation of bids (hereinafter called as "Tender No....." Document) Dated..... for **Design and SITC of 1.5 Megawatt grid connected roof top solar power plant including Operation and Comprehensive Maintenance (O&M) under RESCO mode at various buildings in MDU Rohtak.**

WHEREAS Two or more bidder(s) may from a joint venture among themselves and apply against this tender specification, provided they fulfill the following eligible criteria;

1. They should have legally valid Joint Venture agreement as per the prescribed format for the purpose of participation in the bidding process. The total no. of a Joint Venture shall be limited to two members.
2. Joint Venture members should be construction agencies registered with Govt. Departments.
3. Joint Venture as a whole shall meet the qualifying norms specified in the tender, they participate.
4. The Joint Venture member(s) shall authorize the lead partner by submitting a power of Attorney as per the prescribed format duly signed by the authorized signatories. The lead partner shall be authorized to receive instructions for and on behalf of partners of the Joint Venture and entire execution of the contract.
5. The Joint Venture and its members shall be jointly and severally responsible and be held liable for the purpose of guaranteed obligation and any other matter as required under the contract.
6. Any member of the Joint Venture shall not be eligible either in an individual capacity or part of any other Joint Venture to participate in the tender, where the said Joint Venture participates.
7. Work Order(s) will be placed to lead members of the Joint Venture.
8. In addition to the above the Lead Partner of the bidder(s) should submit the following documents in part-I bid as qualifying terms.
 - i. Registration Certificate with any State/Central Govt. agency.
 - ii.PAN & GST No.
 - iii.EPF registration, ESI registration

Contractor

Witness

Employer

9. The Lead partner of the Bidder(s) shall have to furnish service EPF registration, ESI registration in Rohtak and Labour license within 45 days of receipt of the order.
10. The prescribed formats for Power of Attorney (Annexure-II) is provided in the tender specification as enclosures.

AND WHEREAS the members of the Joint Venture together shall strictly comply the eligible criteria of the Invitation for Bids (IFB).

AND WHEREAS bid has been proposed to be submitted to the Maharshi Dayanand University by Lead member based on this Joint Venture agreement between the members, signed by all the members.

NOW THIS INDENTURE WITNESSETH AS UNDER:

In consideration of the above premises, in the event of the selection of Joint Venture as successful bidder, all the Parties to this Joint Venture Agreement do hereby agree abide themselves as follows:

1. The partnership share of both the agencies for this work will be as under:
2. M/s. shall act as Lead Member for and on behalf of Joint Venture. The said Joint Venture further declare and confirm that they shall jointly and severally be bound and shall be fully responsible to the Client for **Design and SITC of 1.5 Megawatt grid connected roof top solar power plant including Operation and Comprehensive Maintenance (O&M) under RESCO mode at various buildings in MDU Rohtak** and successful performance of the works, obligations under the same by the Lead Member are as follows:
3. Despite any breach by the Lead Member or other Member(s) of the Joint Venture the Member(s) do hereby agree and undertake to ensure full and effectual and successful performance of the Contract with the Maharshi Dayanand University and to carry out all the obligations and responsibilities under the said Contract in accordance with the requirements of the Contract.
4. If the Maharshi Dayanand University suffers any loss or damage on account of any breach of the Contract or any shortfall in the performance in meeting the performance guaranteed as per the specification in terms of the Contract, the Member(s) of these presents undertake to promptly make good such loss or damages caused to the Maharshi Dayanand University, on its demand without any demur. It shall not be necessary or obligatory for the Maharshi Dayanand University to proceed against Lead Member to these presents before proceeding against or dealing with the other Member(s). The obligation of each of the member is absolute and not independent of the Joint Venture or any member.
5. The financial liability of the members of this Joint Venture agreement to the Maharshi Dayanand University with respect to any of the claims arising out of the performance or non- performance of the obligations set forth in the said Joint Venture agreement, read in conjunction with the relevant conditions of the Contract shall, however, not be limited in any way so as to restrict or limit the liabilities of any of the members of the Joint Venture agreement. The liability of each member is absolute and not severable.
6. It is expressly understood and agreed between the Members to this Joint Venture agreement that the responsibilities inter se amongst the Members shall not in any way be a limitation of joint and several responsibilities and liabilities of the Members to the Maharshi Dayanand University. It is clearly understood that the Lead member shall ensure performance under the agreements and if the Joint Venture fail to perform its /their respective obligations under the agreement(s), the same shall be deemed to be a default by all the Joint Venture Members. It will be open for the Client to take any steps, punitive and corrective action including the termination of contract in case of such default also.

7. This Joint Venture agreement shall be construed and interpreted in accordance with the laws of India and shall be subjected to exclusive jurisdiction within Rohtak in all matters arising there under.
8. In case of an award of a Contract, all the Members to the Joint Venture agreement do hereby agree that Lead Partner shall furnish Performance Bank Guarantee for value of 5% of the Contract Price and additional 1% by the other Joint Venture Partner in the form of an unconditional irrecoverable Bank guarantee in the prescribed format and as per terms of the contract.
9. It is further agreed that the Joint Venture agreement shall be irrevocable and shall form an integral part of the Contract, and shall continue to be enforceable till the Client discharges the same. It shall be effective from the date first mentioned above for all purposes and intents.
10. Capitalized terms used but not defined herein shall have the meaning as assigned to them in the Tender Documents and/or the agreements.
11. In case of any dispute amongst the members of the Joint Venture Maharshi Dayanand University shall not be in any way liable and also the Joint Venture members shall not be absolved from the contractual obligation in any manner.

IN WITNESS WHEREOF the Members to the Joint Venture agreement have through their authorized representatives executed these presents and affixed Common Seals of their companies, on the day, month and year first mentioned above.

- | | |
|---|---|
| <p>1. Common Seal of <.....>
has been affixed in my/our presence
Pursuant to the Board of Director's
resolution/Proprietor dated.....</p> <p>Signature..
Name
Designation.....</p> | <p>For Lead/First Member</p> <p>(Signature of authorized
representative)</p> <p>Name... ..
Designation
Common Seal of the company
.....</p> |
| <p>2. Common Seal of <.....>.....
has been affixed in my/our presence
Pursuant to the Board of Director's
resolution/Proprietor dated.....</p> <p>Signature..
Name
Designation.....</p> | <p>For Second Member</p> <p>(Signature of authorized
representative)</p> <p>Name... ..
Designation
Common Seal of the company
.....</p> |

WITNESSES :

- | | |
|---|--|
| <p>1.....2.....
.....
(Signature) (Signature)
Name Name
(Official address) (Official address)</p> | |
|---|--|

**FORM OF POWER OF ATTORNEY FOR Joint Venture
(On Non –Judicial Stamp Paper of Appropriate value
to be Purchased in the Name of Joint Venture)**

KNOW ALL MEN BY THESE PRESENTS THAT WE, the Members whose details are given hereunder..... have formed a **Joint Venture** and having our Registered Office (s)/Head Office (s) at(hereinafter called the '**Joint Venture**' which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators and assigns) do hereby constitute, nominate and appoint M/s..... incorporated under the Registration No.and having its Registered/Head Office atas our duly constituted lawful Attorney (hereinafter called "Lead Member ") to exercise all or any of the powers for and on behalf of the JOINT VENTURE in regard to bid document No..... for the works of for which bids have been invited by the Client namely (Maharshi Dayanand University, Rohtak), to undertake the following acts :

- (i) To submit proposal, participate and negotiate in respect of the aforesaid Bid – Specification of the Client on behalf of the "**Joint Venture**".
- (ii) To negotiate with Client the terms and conditions for award of the contract pursuant to the aforesaid Bid and to sign the contract with the Client for and on behalf of the "**Joint Venture**".
- (iii) To do any other act or submit any document related to the above.
- (iv) To receive, accept and execute the contract for and on behalf of the "**Joint Venture**".
- (v) To submit the contract performance security in the form of an unconditional irrecoverable Bank guarantee in the prescribed format and as per terms of the contract.

It is clearly understood that the Lead Member shall ensure performance of the contracts (s) and if one or more Member fail to perform their respective portion of the contracts (s), the same shall be deemed to be a default by all the Members.

It is expressly understood that this power of Attorney shall remain valid binding and irrevocable till completion of the Defect or liability period in terms of the contract.

The **Joint Venture** hereby agrees and undertakes to ratify and confirm all the whatsoever the said Lead Member quotes in the bid, negotiates and signs the Contract with the Client and / or proposes to act on behalf of the **Joint Venture** by virtue of this Power of Attorney and the same shall bind the **Joint Venture** as if done by itself.

IN WITNESS THEREOF the Members Constituting the **Joint Venture** as aforesaid have executed these presents on this day of under the Common Seal (s) of their Companies

for and on behalf of
the Members of **Joint Venture**
1.
2.

The Common Seal of the above Members of the **Joint Venture** :

The Common Seal has been affixed there unto in the presence of :

WITNESS

- 1. Signature
- Name
- Designation
- Occupation

- 2. Signature
- Name
- Designation
- Occupation