

Shiksha Mandal's
Bajaj College of Science, Wardha
(Autonomous)



TENDER DOCUMENT

for

Design, supply, installation, testing and commissioning with five years comprehensive maintenance of (40+9.9=49.9 KWP) Grid Connected SPV(Solar Photovoltaic) power plant under net metering at Bajaj College of Science, Wardha on various buildings

Last date of sale of tender document : **22/04/2021**

Date of Pre-Bid Meeting : **15/04/2021**

Bid opening Date : **24/04/2021**

Address for Correspondence

Principal, Bajaj College of Science

Jamnalal Bajaj Marg, Civil Lines, Wardha (M.S.) 442001

Tel.07152-230515,241696, Email : jbsciencewardha@yahoo.co.in

Date of Publication : 27/03/2021

Cost of Tender Document : Rs. 1000/- only

Shiksha Mandal's
Bajaj College of Science, Wardha
Jamnalal Bajaj Marg, Civil Lines, Wardha (M.S.) 442001
Tel.07152-230515,241696, Email : jbsciencewardha@yahoo.co.in

E-Tender Notice

(Tender ID : 2021_RUSA_669675_1)

Bajaj College of Science, Wardha invites tender online from experienced and capable agencies for the following work.

Type of work	Estimated Cost of Construction (Rs)	Cost of Tender Form (Rs.)	Earnest Money Deposit (Rs.)	Date of commencement of sale of Tender document / download	Last date for sale of tender document	Date of receipt of filled tender form
Design, supply, installation, testing and commissioning with five years comprehensive maintenance of (40+9.9=49.9 KWP) Grid Connected SPV(Solar Photovoltaic) power plant under net metering at Bajaj College of Science, Wardha on various buildings	2750000/-	1000/-	27500/-	As per E-Tender Portal		

Note : 1) Filled tender will be accepted in online mode only. 2) Bajaj College of Science, Wardha reserves the right to accept or reject any bid or all bids without assigning any reasons whatsoever. For details visit <http://mahatenders.gov.in> or contact our office at Wardha.

Principal
Bajaj College of Science, Wardha

Tender Schedule

All bid related activities (process) like tender document download, bid submission and submission of EMD and other documents will be governed by the time schedule given under key dates as below

Date and time of commencement of sale of Tender document / download	:	27/03/2021, 9.00 am onwards
Last date and time for sale of tender document	:	22/04/2021 upto 06.00 pm
Date of pre-bid meeting	:	15/04/2021 at 12 noon
Bid opening date	:	24/04/2021 at 01.00 pm
Address for communication	:	Bajaj College of Science, Jamnalal Bajaj Marg, Civil Lines, Wardha 442001

SECTION I

Shiksha Mandal's
Bajaj College of Science, Wardha

General Terms and Conditions

E-Tender for design, supply, installation, testing and commissioning with five years comprehensive maintenance of (40+9.9=49.9 KWP) Grid Connected SPV (Solar Photovoltaic) power plant under net metering at Bajaj College of Science, Wardha on various buildings

- a) The Principal, Bajaj College of Science, Wardha here in after referred to as a "Purchaser " invites online tender in two Envelope systems for Design, Supply, installation, testing, commissioning and maintenance of Grid connected Roof Top Solar Power Plant with net metering facility for use of solar energy at Bajaj College of Science, Wardha.
- b) Interested eligible Tenderer may obtain further information of technical specifications, required quantities and other terms and conditions applicable for procurement of item, from Government of Maharashtra E-tendering website <http://mahatenders.gov.in>.
- c) All tender related activities (Process) like Tender Document Download, Tender Preparation and submission, Tender submission and submission of EMD and other documents will be governed by the time schedule as given above.
- d) All activities of this tender are carried out online on Website <http://mahatenders.gov.in>. The tender document is uploaded / Released on Government of Maharashtra, (GOM) e-tendering website <http://mahatenders.gov.in> , and has to be downloaded as well as filled up and submit online only.
- e) Tenderer are required to submit online tender cost amounting to Rs. 1000/- (Non-refundable) through Net Banking as per option available on web site. The tender cost fee should not be mixed with EMD amount. Tender shall liable to be rejected summarily upon failure to follow procedure prescribed in the Tender document.
- f) The quantities mentioned in the tender are only approximate. Purchaser has been reserved the right to increase or decrease in the quantity to be purchased and also reserves the right to cancel or revise any or the all the tenders or part of tenders without assigning any reasons thereto.
- g) If any tenderer wishes to lodge any complaint against the other tenderer regarding submission of false documents, information etc., the tenderer has to submit the complaint before price bid opening along with deposit of Rs.50,000 (Rupees Fifty Thousand only) in the form of Demand Draft drawn in favour of Principal, Bajaj College of Science, Wardha, payable at Wardha in terms of deposit. This issue will be submitted to Central Purchase Committee along with facts. The amount so deposited shall be refunded, if after scrutiny the complaint is found to be true by the Central Purchase Committee. However, if the complaint found to be false and malafide the deposit will be forfeited. No interest shall be paid against this deposit. Any complaint received after price bid opening will not be entertained.
- h) No conditional tender will be considered

- i) The total average turnover of manufacturers / authorized sellers / suppliers for the financial years 2017-18, 2018-19 and 2019-20 should be at least Rs. 30 lakhs. For this, the certificate of chartered accountant of three years should be attached.
- j) Only after verification of the required technical documents and eligibility documents as per the terms and conditions of the tender, after verification of the documents submitted in the technical envelope of the concerned bidder, the commercial rate envelope of the eligible bidders will be opened.
- k) While paying the rate of the material mentioned in the tender, the original cost of the material as well as all the applicable taxes (GST and fees) as well as the transportation cost should be shown separately.
- l) The tender holder whose rates will be sanctioned will be required to deposit a security deposit amount of 5% of the supply order amount through Demand Draft (in the name of Principal, Bajaj Science College, Wardha) before the supply order. This amount will be refunded after completion of audit / warranty period of the material.
- m) As per Govt. Resolution by Industries, Energy & Labour Department, Maharashtra State, dated 1 December 2016, Para 3.1.2.1 (Annexure -8) Manufacturer's & Suppliers which are registered under "Micro & Small, Medium industries Development Act 2006 " are exempted from Tender Fee & Earnest Money Deposit. Government Undertaking Firms / Corporations also exempted from Tender Fee & Earnest Money Deposit. Manufacturer Firms who are registered for offered product under Government under taking firms, Micro and Small-scale Industries registered as a manufacturer under Micro & Small, Medium Industries Development Act, 2006, will be granted exemption from payment of Tender Fee & EMD in respect of tender item as specified in the technical specifications and mentioned in the registration certificate & EM part II which has been produced for exemption. This preference shall invariably be applicable to the manufacturers for the specific product as per technical specifications of this tender.
- n) Industries registered as manufacturers under the Micro and Small and Medium Enterprises Development Act, 2006 will be exempted from paying tender fee and earnest money but will be required to submit the required documents.
- o) Also the earnest money paid along with the tender by the bidder whose rates will be sanctioned will also be credited as security deposit.
- p) If the contractor refuses to supply the material at the lowest rate in the tender, the deposit will be forfeited. Also, the name of the concerned minimum tender holder will be blacklisted and he will not be given work by Bajaj College of Science, Wardha for 3 years.
- q) The supply order will be issued only after the approved tenderer has signed the agreement on the required amount as per the government regulations within period with Bajaj College of Science, Wardha as per the acceptance letter.
- r) As per the details in the tender, the maintenance of materials will be mandatory for minimum 5 years.
- s) If there is a dispute over the supply of this material, the court place will be Wardha.
- t) The Principal, Bajaj College of Science, Wardha reserves the right to approve any tender or reject it without giving any reason and to relax the terms and conditions of the tender.
- u) At the time of opening the technical as well as commercial rate envelope of the tender, the name, designation, photo and signature of the person representing the tender holder should be mentioned on the letterhead of the organization and signed by the head of the organization along with the name and designation.

- v) Technical Envelope No. 1 and Envelope No. 2 should contain the documents as mentioned in “Envelope 1” and “Envelope 2”

Envelope No. 1 (Technical Bid) should contain :

All the documents submitted in Pocket No. 1 should be signed and uploaded. Unsigned documents will not be accepted.

- 1) Copy of Software generated receipt of Tender Fee & EMD paid online
- 2) A copy of the statement of income tax return for the last 3 years, soft copy of PAN card.
- 3) certificate of registration of organization shops with renewal, GST registration certificate and return statement of GST payment by the end of last month September 2020
- 4) The total average turnover of the manufacturer / authorized seller / supplier for the financial year 2017-18, 2018-19, 2019-2020 should be at least Rs. 30 lakhs. For this, the certificate of chartered accountant of three years.
- 5) If the organization participating in the tender is in partnership (partnership), the power of attorney of the partnership must attach a true copy.
- 6) Undertaking on Rs.100 stamp paper in the prescribed form.
- 7) The tenderer participating in the tender process and the tenderer selected from the tender process must submit a written certificate that he has never been blacklisted by the Government of India or the Government of Maharashtra.
- 8) Manufacturers should upload the certificate of being the original manufacturer of the equipment (OEM). If the tenderer is not the original producer, he must also submit the Authorization Certificate of the original producer. It will be necessary to attach the CERTIFICATE OF CONFORMITY with the tender.
- 9) It will be necessary for the tender holder to inspect the material in the tender from the inspection body given by the government decision from the Department of Industry, Energy and Labor and attach the inspection report with the tender.
- 10) Contractors must mention make of Inverters, solar panels, cables, switching equipment & structure along with technical details.

Envelope No. 2 (Price Bid)

Tender rates should be put in Pocket No. 02

- 1) All Commercial offers must be submitted online at <http://mahatenders.gov.in> as per the instructions on the portal.
- 2) Rates should be quoted in the Price Schedule as per format for BOQ (Price Bid) only.
- 3) Tenderer are strictly prohibited to change/alter specifications or unit size given in Schedule of requirements while quoting.

SECTION II

DETAILED TERMS AND CONDITIONS WITH RESPECT TO ACTUAL WORK :

1. SCOPE OF WORKS

The Scope of works is as below:

- 1.1 Work includes design, supply, installation, testing and commissioning with five years comprehensive maintenance of (49.9 kWp) Grid Connected SPV(Solar Photovoltaic) power plant under net metering at Bajaj College of Science, Wardha on various buildings in the Maharashtra State described in the tender document.
- 1.2 Solar system includes Solar Modules, Array structure on terrace of hostel & college buildings, Junction boxes, DC distribution boards, AC distribution panel board, Power conditioning unit (PCU) / Inverter, Integration of solar PV power with grid, remote monitoring facilities, Metering , Bidirectional and unidirectional electronic net/ energy meters, protections (Lightning protection, surge protection, earthing protection, Fuses/ MCCB, grid islanding) , cables, danger boards and signage, providing drawings & manuals, water pipe line for cleaning of panels along with storage tanks of min. 200 lts each along with booster pump, replacement of cables and switches necessary for the system, protection boxes with sealing arrangement for CT METER with glass window for meter reading and reading equipment, separate control room if required.
- 1.3 Foundations of supporting structure of panels should not cause stagnation of water on terrace.
- 1.4 Rectification of damages like making holes in walls, excavation etc. should be done to its original state for proper look.
- 1.5 Free replacement of defective components of systems within Comprehensive Maintenance period (CMC) of 5 years after commissioning of the project for efficient & agreed generation of electricity from the solar power system.
- 1.6 The Contractor should complete this project in given time.
- 1.7 Contractor shall be bound to start and maintain the system as per the rules, regulations and modalities as prescribed by MNRE and MEDA for the effective functioning of the project.
- 1.8 Contractor will be required to complete the work within the stipulated time as specified in the tender document. The contractor shall ensure that SPV power plant should be commissioned within 2 months as per the agreed milestone from the date of issue of work order.
- 1.9 Bids shall be complete and cover all works described in the tender. However if any item of works required for completing the project shall be deemed to be included in contractor's scope, irrespective of whether it is specifically mentioned or not in the tender document.
- 1.10 Contractor should obtain the statutory permissions from statutory bodies wherever required for execution of works at his own cost. Contractor shall be responsible to get the approval of SLD and final sanction letter for grid connectivity from the CE PWD / electrical inspector, if applicable.
- 1.11 Contractor has to apply for net metering for two consumer numbers. Necessary documents shall be provided by the college. Contractor shall get their meters tested /

approved and installed by DISCOM at their cost. Copy of all such test reports need to be submitted to the college.

- 1.12 All the workers / labors used during execution /maintenance shall be covered under ESIC and adequately provided with insurance cover in case of unlikely situation of any accident.
- 1.13 Contractor will assure minimum generation of 1300 units of power per kwp installed per year for 5 years by way of “Generation Guarantee” on Rs. 100/- non judicial stamp paper duly registered or notarized. Bidder has to bear loss for less generation at the prevailing average rate of DISCOM .
- 1.14 Partial bids or bids which do not cover the entire scope of the project will be treated as incomplete and not responsive to the terms & conditions of tender and are liable to be rejected.

2. QUALIFYING CRITERION:

The bidder shall provide sufficient documentary evidence to satisfy the following conditions:

- 2.1. Bidder must be a licensed electrical contractor for Maharashtra or should have an execution partner with necessary electrical contractor license with electrical supervisor on roll.
- 2.2 Bidder must be ESIC registered.
- 2.3 GST registration is must for bidder.
- 2.4 Bidder should have completed minimum 1 project of 50 kwp or more at the single site and necessary documentation (PO copy) needs to be provided in technical bid.
- 2.5 Have field service setup in the state for providing after sales services including necessary replacement, repair and maintenance of the project.

3. STANDARDS / CERTIFICATES :

- 3.1 The material/ equipments /components supplied and works executed under this contract shall be confirmed to the standards mentioned in the technical specifications. Where no standards are mentioned, the latest version of Indian Standard Institution or Bureau of Indian Specification shall be considered.
- 3.2 The Bidder shall submit all the valid test certificates and reports of the system components following the latest MNRE Guidelines and the same components shall be supplied for which the test reports/certificates are submitted.

4. SITE CONDITIONS :

- 4.1. The Bidders shall be presumed to have carefully examined the drawings, conditions and specifications of the work and have fully acquainted themselves with all details of the site, actual dimensions of roofs, heights of roofs, position and type of roofs, electrical supply and connections, number of electric meters, weather characteristics, labor conditions and in general with all the necessary information and data pertaining to the work, prior to tendering for the work.
- 4.2. The bidder should visit the site and perform technical survey and upload the site visit report in the given format during submission of tender.
- 4.3. The data whatsoever supplied by the college along with the tender documents are meant to serve only as guide for the bidders while tendering and the college accepts no responsibility whatsoever either for the accuracy of data or for their comprehensiveness.

- 4.4. The Contractor should examine whether full quantity of materials required for execution of the work strictly as per specification are available from expected source. In case the materials are not available due to reasons whatsoever, the contractor will have to bring the materials from any other source with no extra cost to the college. The rates quoted, should therefore be for all leads and lifts from wherever the materials are brought at site of work and inclusive of royalty and taxes.
- 4.5. While lifting material through staircase, care should be taken to protect floor and stair tiles, else rectification to original state should be done free of cost at the earliest. While lifting of material by ropes / cables from outside of building, care should be taken to protect cladding sheets, paints, parapet sills, else rectification to original state should be done free of cost at the earliest. "Open to sky" ventilators – 2 numbers at one of the building needs to be kept open and layout should be planned to avoid covering it with panels.
- 4.6. College will not entertain any claim at any stage of successful bidder on the plea that the bidder was not having sufficiently acquainted himself to the site conditions.
- 4.7 Pre-Bid Meeting : Pre-bid meeting will be held on 15/04/2021 at Bajaj College of Science, Wardha at 12 noon and attending Pre-Bid Meet will be mandatory. Any doubts regarding site or execution conditions can be clarified during pre-bid meet. The tenders of the bidders who attend Pre-Bid meet will only be considered.
- 4.8 Contractor will be required to complete all necessary formalities related to Load Enhancement (if required), application for Net Metering, submission of necessary papers, and follow up with DISCOM till change of both meters and getting correct bill with New Meter numbers with generation / Import / Export reading.
- 4.9 Contractor has to obtain stability certificate for building roof from structural Engineer / architect.

5. CONDITIONAL TENDER:

- 5.1. The tenders which do not fulfill the condition of the notification and the general rules and directions for the guidance of contractor in the tender form or are incomplete in any respect are likely to be rejected without assigning any reason therefore.
- 5.2. The bidder may, in the forwarding letter, mention any points are may wish to make clear but the right is reserved to reject the same or the whole of the tender if the same becomes conditional tender thereby.

6. MANNER OF EXECUTION :

- 6.1 Execution of work shall be carried out in the approved manner as outlined in the technical specifications or where not outlined, in accordance with relevant MNRE / MEDA / BIS / Indian Standard Specifications/ IEC, to the reasonable satisfaction of the Purchaser.
- 6.2 The Contractor should successfully complete the project within time frame set out and mutually agreed between Contractor and college.
- 6.3 College shall not be responsible for any loss or damage of any material when installing SPV power plants.
- 6.4 It is the responsibility of contractor to make the insurance of SPV system from the date of commissioning for the CMC period by following standard procedure.
- 6.5 Undertake necessary activities during the warranty period as set out in this Contract.

7. INSPECTION:

- 7.1 The projects will be inspected for quality at any time during commissioning or after the completion of the project by College authority (College authority includes officers of college, consultant or third party inspection team appointed by college).
- 7.2 Contractor shall inform in writing when any portion of the work is ready for inspection (site wise) giving sufficient notice to enable college to inspect the same without affecting the further progress of the work. The work shall not be considered in accordance with the terms of the contract, if any deficiency found in work while inspection and it is not rectified by the contractor.
- 7.3 Contractor has to strictly follow the makes, specifications prescribed in this tender, for carrying out the execution of work. During inspection if it is found that contractor has deviated from the specifications, contractor has to do the alteration / modification /reconstructions as per the given specifications at his own cost & risk with prior approval from the college.

8. TRANSPORTATION:

Where the contractor is required under the contract to transport the goods to specified locations defined as Project sites, transport to such places including insurance, shall be arranged by the contractor. The contract price includes transportation costs with insurance and taxes.

9. FOREIGN EXCHANGE:

No foreign exchange will be released by the college for the purchase of plants and machinery for the work executed by the Contractor.

10. SAMPLES AND TESTING OF MATERIALS:

- 10.1 Samples of materials and equipments to be used on work, shall be provided well in advance to the college for its Brands/ make/ capacity etc. and contractor shall pass the tests and analysis, if required by him,
- 10.2 The contractor shall at his risk and cost make all arrangement and / or shall provide for all such facilities as the college may require for collecting, preparing and forwarding required number of samples for tests or for analysis at such time and to such place or places as may be directed by the college and bear all charges and cost of testing. Such samples shall also be deposited with the Principal till sent for testing.

11. CO-ORDINATION:

When several agencies works at the project site simultaneously, there must be full co-ordination between the contractors to ensure timely completion of the whole project smoothly. The scheduled dates for completion specified in each contract shall, therefore be strictly adhered to. Each contractor may make his independent arrangements for water, power, housing etc. if they so desire. On the other hand the Contractors are at liberty to come to mutual agreement on his behalf and make joint agreement with the approval of the college. No contractor shall take or cause to take any steps or action that may cause destruction, discontent or disturbance to work, labor or arrangements etc. of

other contractors in the project localities. Any action by any Contractors which the college in his unquestioned discretion may consider as infringement of the above code would be considered as a breach of the contract conditions and shall be dealt with accordingly. In case of any dispute or disagreement between the various contractors, the college decision regarding the co-ordination, co-operation and facilities to be provided by any of the contractor shall be final and binding on the contractors concerned & such a decision shall not vitiate any contract nor absolve the contractor of his obligations under the contract nor form the grounds for any claim or compensation.

12. PENALTY CLAUSE :

- 12.1. Due to any fault from contractor side, if the systems are not installed and commissioned within the stipulated completion period as mentioned in the work order/ tender, the contractor shall be required to pay penalty of Rs.1000/- per day, total penalty limited to maximum up to 10% of the total cost of the system (contract value) and the amount shall be recovered either from the amount due to the contractor or from Security Deposit. The decision of college in this regard will be final.
- 12.2. In every case in which the delay mentioned in clause 12.1 shall continue for consecutive days, the college shall have power either to rescind the contract altogether or to get it done through other agency at contractor's risk and cost and the contractor has to bear all the additional cost incurred against the completion of balance work and the amount shall be recovered either from the amount due to the contractor or from Security Deposit. The contractor shall have no claim to compensation for any loss that he may thus incur on account of action of the Divisional Manager.
- 12.3. Contractor will assure minimum generation of 1300 units of power per kwp installed system per year for 5 years by way of "Generation Guarantee" on Rs 100/- non judicial stamp paper duly registered or notarized. In the event, total generation from all the inverters is less than the total generation guarantee, contractor shall compensate college for the loss of power and the same will be calculated at Rs.8/- per KWH (units) produced less than the guaranteed generation. Recovery will be done from performance bank guarantee.

13. EXTENSION OF TIME:

- 13.1 If the contractor desires an extension of the time for completion of the work on the ground of his having unavoidable hindering in its execution or on the other ground, he shall apply in writing to the Principal, Bajaj College of Science, Wardha before the expiration of the period stipulated in the tender or before the expiration of 30 days from the date to which he was hindered as aforesaid or on which the cause for asking ever extension occurred, whichever is earlier and the college may, if in his opinion there are reasonable grounds for granting an extension, grant such extension as he thinks necessary or proper. The decision of the college in this matter shall be final. In the absence of such written authority of the college, the contractor shall have no claim to exemption from the fine leviable under clause 12.1 (penalty clause).
- 13.2 In the case of delay in handing over the land/space required for the work due to unforeseen cause, the contractor shall not be entitled for any compensation whatsoever from the college on the ground that the machinery or the labor was idle for certain period. Contractor may, however apply for extension of time limit which may be granted on the merit of the case.

SECTION III

GENERAL INSTRUCTIONS, TERMS AND CONDITIONS:

- 1. Approval to electrical SLD and sanction of Electrical Inspector for grid connectivity:** Contractor shall be responsible to get the approval of SLD (Single Line Diagram) and final sanction letter for grid connectivity from the CE PWD / electrical inspector, if applicable.
- 2. Sanction for net metering:** Contractor will have to get it done at his cost. Necessary documentation shall be provided by College / Purchaser.
- 3. Meter testing and installation:** Contractor shall get their meters tested / approved and installed by DISCOM at their cost. Copy of all such test reports need to be submitted to College / Purchaser.
- 4. Supervisor:** Trained and experienced supervisor needs to be posted at the site during installation. All the workers / labors used during execution shall be covered under ESIC and adequately provided with insurance cover in case of unlikely situation of any accident.
- 5. Workers behavior :** Contractor shall be fully responsible for material and manpower. All the workers need to behave properly during their presence in college premises.
- 6. Avoid disturbance to occupant while execution:** Care should be taken to create no / minimum disturbance in college working during execution.
- 7. Avoid damage to property while execution:** Care should be taken to preserve the building and material / property of college during work. Any damage to the same shall be made good by Contractor.
- 8. Use of electricity and water while execution:** Available Electric power and water (including potable water) can be used by contractor free of cost to execute the work of college.
- 9. Site visit before bid:** Visit to site prior to filing the bid is MUST. Site visit report in prescribed format needs to be attached along with the technical bid without which commercial bid shall not be opened.
- 10. Installation certificate:** Separate Installation certificate in prescribed format needs to be submitted for each PV system installed giving all the technical details, specifications, Sr no. , quantity used.
- 11. Warrantee / guarantee:** The contractor 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. The contractor shall provide warrantee covering the rectification of any and all defects in the design of equipment, materials and workmanship including spare parts for a period of 5 years from the date of commissioning of project. The contractor has to transfer all the Guarantees/ Warrantees of all the different components to the College/Purchaser at the end of the free maintenance period. The responsibility of operation of Warrantee and Guarantee clauses and Claims/ Settlement of issues arising out of said clauses shall be responsibility of the contractor during maintenance period. Separate Warrantee certificates in prescribed

format needs to be provided along with the bill for each PV system installed giving Sr. No. of the material used. Contractor needs to enclose a letter from Module & inverter manufacturer for back to back warrantee coverage after successful allotment of tender.

- 12. Quarterly visits for preventive maintenance:** Regular quarterly visit for preventive maintenance is must and report of site visit duly signed by contractor needs to be submitted during warrantee period of 5 yrs.
- 13. Mode of communications and notices:** Wherever provision is made for the giving or issue of any notice, instruction, consent, approval, certificate or determination by any person, unless otherwise specified such communication shall be in writing and shall not be unreasonably withheld or delayed. Any notice given by one party to the other pursuant to this contract shall be sent to other party in writing or by cable, facsimile or email and confirmed in writing to the other party's address specified. A notice shall be effective when delivered or on the notice's effective date, whichever is later.
- 14. Progress review meeting:** Project review coordination meetings between the college officers, project consultant (if any) and Contractor shall be conducted as and when required by the Principal of the college, at locations decided by the Principal of the College, for Contractor's reviewing progress and plans for completing the remaining Works, to deal with matters affecting the progress of the Works, and to decide actions required to be taken. Decisions taken and instructions issued during the coordination meetings, as recorded in the minutes, shall have the same force and effect as if they were written communications issued in this accordance.
- 15. Recovery of dues from other work:** Any dues arising out of contract will be recovered from the contractor as arrears of Land Revenue, if not paid amicably.
- 16. Sub-contracts:** Subcontract / subletting are strictly prohibited (work execution and maintenance). The work order is not transferable. The bidder who signed this contract is responsible for execution as well as maintenance.
- 17. Termination for Default:** The Principal of the college / Purchaser without prejudice to any other remedy for breach of contract, by written notice of default sent to the Contractor/ Agency, terminate the contract in whole or part:
 - a) If the Contractor / Agency fails to complete the work within the period(s) or within any extension thereof granted by the Purchaser.
 - b) If the Contractor / Agency, in the judgment of Purchaser has engaged in corrupt or fraudulent practices in competing for or in executing the contract.
 - c) In the event Purchaser terminates the contract in whole or in part, Purchaser may execute, upon such terms and in such manner as it deems by the contractor. Contractor shall be liable to pay any excess costs for such similar execution for completion of work. However, the contractor shall continue the performance of the contract to the extent not terminated.
- 18. Applicable Law:** The contract shall be interpreted in accordance with the laws of the Union of India.
- 19. Insurance:** The contractor 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 of comprehensive

maintenance. The contractor 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 contractor 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 contractor. The contractor shall provide insurance coverage ex-factory until commissioning and acceptance for replacement or repair of any part of the consignment due to damage or loss.

20. Fire Extinguishers: The fire fighting 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.
- d) 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.

21. Drawings & Manuals:

21.1 Two sets of Engineering, electrical drawings and Installation and O&M manuals are to be supplied by contractor. Contractor shall provide complete technical data sheets for each equipment giving details of the specifications along with make/makes along with basic design of the power plant and power evacuation, synchronization along with protection equipment.

21.2 For complete electro-mechanical works, bidders shall supply complete design, details, and drawings for information to the Purchaser before progressing with the installation work.

22. Planning And Designing:

22.1 The contractor should carry out Shadow Analysis of 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 to the Purchaser for information.

22.2 The Purchaser reserves the right to modify the design, layout and specification of systems and components at any stage as per local site conditions/requirements.

22.3 Drawings should include :- General arrangement and dimensioned layout, Schematic drawing showing the requirement of SPV panel, Power conditioning Unit(s)/ Inverter, Junction Boxes, AC and DC Distribution Boards, meters etc., structural drawing along with foundation details for the structure, layout of solar Power Array, single line diagrams, Shadow analysis of the site.

23. Action when inferior material is supplied: If the event of the materials being considered by the Officer-in-charge of the work to be inferior to that described in the specifications, the contractor shall on demand in writing, forth with remove the same at his own cost and in the event of his failure to do so within such period as may be named by the Principal, Bajaj College of Science, Wardha may have such rejected material removed at the

contractors risk and expense, the expense so incurred being deducted from any sums due or which may become due to the contractor.

- 24. Action for damages :** If the contractor or his workman shall break or deface any building, road fence enclosure or grass land or any cultivated land he shall repair or replace the same and if any damage has been done, he shall make good the same at his own and in the event of his refusing or failing to do so the damage shall be made good at the contractor's expense by the officer inviting the tender who shall deduct the cost from any sums due or which may become due to the contractor or from his security deposits or the proceeds of sale thereof or a sufficient portion thereof.
- 25. Work on Sundays :** No work shall be done on a Sunday without the sanction in writing of the site-in-charge.
- 26. Sub-letting contract :** This contract shall not be sublet without the written permission of the Divisional Manager in the event of the contractor sub-letting his contract without permission, he shall be considered to have thereby committed a breach of the contract and shall forfeit his security deposit, and shall have no claim for any compensation for any loss that may accrue on account of the collection of the materials or engagement entered into.
- 27. Compensation under the Workmen's compensation Act :**The contractor shall be responsible for and shall pay any compensation to his workmen which may be payable compensation Act.,1923 the workmen's (VIII of 1923) hereinafter called the said Act, for injuries suffered by them, if such compensation is paid by the Purchaser as principal under sub-section (1) of section 12 of the said Act on behalf of the contractor, it shall be recoverable by the Purchaser from the contractor under sub-section (2) of the said section. Such compensation shall be recovered in the manner laid down in clause -1 above.
- 28. Decision of Principal / Purchaser to be final:** The decision of the Principal / Purchaser for the time being shall be final, binding and conclusive on all questions relating to the meaning of the specification.
- 29. Reduction in quantum of work :** No guarantee can be given that the total work indicated in the schedule of the contract will be executed during the period of the contract. Purchaser can curtail the work with proportionate cost, if required, by intimating to contractor in advance.
- 30. No increase in contract rates :** No claim or claims made by the contractor for increased rates on the grounds that the market or other rates included in the contract have reason during the period of his contract will be recognized that is to say, the contractor is bound to complete the work and /or to supply materials at the rates mentioned in the contract.
- 31. No minor laborer and no animal violation :**
- (i) No contractor shall employ any person who is under age of 18 years.
 - (ii) No contractor shall employ donkeys or other animals with breeching of string or rope. The breeching must be at least three inches wide and should be tape (newar)
 - (iii) No animal suffering from sores or emaciation or which is immature shall be employed on the work.
 - (iv) The Purchaser is authorized to remove from the work any person or animal found working which do not satisfy these conditions and no responsibility shall be

accepted by department for any delay caused in the completion of the work by such removal .

- (v) The contractor shall pay fair and reasonable wages to the workmen employed by him in the works undertaken by him. In the event of any dispute arising between the contractor and his workmen on the ground that the wages paid are not fair and reasonable. The dispute be referred without delay to the Purchaser who shall decide the same. The decision of the Purchaser shall be conclusive and binding on the contractor but the existence of the dispute or decision if any, of the Purchaser shall not in any way affect the conditions in the contract regarding the period during which the work is to be completed or the payment to be made by the Purchaser at the sanctioned tendered rates.

32. Liability of damage and imperfection in executed work:

If during the period of 24 months or warranty period whichever is more from the date of completion as certified by the Purchaser, the said work is defective in any manner whatsoever, the contractor shall forthwith on receipt of notice in that behalf from the Purchaser, duly commence execution and completely carry out at his cost in every respect all the work that may be necessary for rectifying and setting right the defects specified therein including dismantling and re-construction of unsafe portions strictly in accordance with and in the manner prescribed and under the supervision of the Principal of the college or his representative. In the event of the contractor failing or neglecting to commence executions of the said rectification work within the period prescribed therefore in the said notice and / or to complete the same as aforesaid as required by the said notice, the Principal / Purchaser get the same carried out departmentally or by other agency at the risk on account and at the cost of the contractor. The contractor shall forthwith on demand pay to the Principal, Bajaj College of Science, Wardha the amount of such costs, charges and expenses sustained or incurred by the Principal, Bajaj College of Science, Wardha of which the certificate of the Principal / Purchaser shall be final and binding on the contractor. Such costs, charges and expenses shall be recovered from the performance bank guarantee. The Principal shall also entitled to deduct the same from any amount which may then be thereafter become payable by the Principal/Purchaser to contractor either in the respect of the said work or any other work whatsoever or from the amount of security deposit retained by Principal, Bajaj College of Science, Wardha.

33. Payment by cheque: Payment to contractors will be made by cheque.

34. Acceptance of conditions before tendering work : Any contractor who does not accept these conditions shall not be allowed to tender for works.

35. Safety measures: The contractor 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 during the execution period and CMC period.

SECTION IV

Site details / Technical specifications

Site Details (Mounting type and system capacity):

Location	Bajaj College of Science, Jarnalal Bajaj Marg, Civil Lines, Wardha (M.S.) - 442001
DISCOM	Maharashtra State Electricity Distribution Co Ltd
Site Lat / Log / Alt	Lat – 20.74031, Log – 78.614123
Mounting Type	Roof mount : Terrace
System Capacity	Total: 49.9 KWP (40+9.9KWP)
Capacity Split	
College Premises	40 KWP Consumer No. (390010203441) Sanction Load 92 KW
Girls Hostel Premises	9.9 KWP Consumer No. (390010094201) Sanction Load 1 KW
Type of supply	AC 3 Ph LT
Building height	Appox.10 M

General Technical Specifications of the Material to be used:

Solar PV Modules :

Solar PV Modules shall be Mono crystalline 395 wp or above. Strictly adhere to the following standards

Standard	Narration
IEC 61215 / IS 14286	Design qualification and type approval for crystalline silicon terrestrial photovoltaic modules
IEC 61701	Salt mist corrosion testing of photovoltaic (PV) modules
IEC 61853 – Part 1 / IS 16170: Part 1	Photovoltaic (PV) module performance testing and energy rating : Irradiance and temperature performance measurements and power rating
IEC 61730- 1,2	Photovoltaic (PV) Module safety qualification – Part 1 : Requirements for construction, Part -2 : Requirements for testing

Recommended makes: SMA, Delta, ABB, Kaco, KSolare

Solar PV String Inverters :

Standard	Narration
IEC 62109-1, 2	Safety of power converters for use in photovoltaic power systems Part 1 : General Requirements and safety of power converters for use of photovoltaic power systems Part 2: Particular requirements for inverters. Safety compliance (Protection degree IP 65 for outdoor mounting, IP 54 for indoor mounting)
IEC 62116/UL 1741 / IEEE 1547	Utility interconnected photovoltaic inverters – Test procedure for Islanding prevention measures
IEC 60068 -2	Environmental testing of PV System – Power conditioners and inverters
IEC 61000	Electromagnetic Interference (EMI) and Electromagnetic compatibility (EMC) testing of PV Inverters

Recommended makes : Waaree , Vikram , Canadian Solar, Renisole, Trina, Sova

Structure:

1. Slanting roof top
2. Hot dipped galvanized elevated super structure for roof top to avoid shadows caused by water tanks & glow sign board

All the fitments of the structure need to be anodized and all nut bolts & washers should be of stainless steel SS304. The structure as a unit along with mounted solar modules needs to withstand 160 km/ hr wind speed.

Other fitments & accessories:

All the fitments & accessories should comply with following specifications as per MNRE guidelines

IS 2062 / IS 4759	Material for structure mounting
-------------------	---------------------------------

Fuses

IEC 60947 (part 1,2 & 3)	General safety requirements for connectors , switches, circuit breakers (AC / DC)
EN 50521	Connectors for photovoltaic systems – safety requirements & tests
IEC 60269-6	Supplementary requirements for fuse links for protection of solar photovoltaic energy systems

Surge Arrestors

IEC 61643 -11	General safety requirements for connectors , switches, circuit breakers (AC / DC)
---------------	-----------------------------------------------------------------------------------

Cables

IEC 60227 / IS 694, IEC 60502/IS 1554 (part 1& 2)	General test & measuring methods for PVC insulated cables for working voltage upto 1100v and UV resistant for outdoor insulation
----------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------

Earthing

IEC 62561series	Chemical earthing
-----------------	-------------------

Junction Boxes

IEC 60529	Junction boxes & solar panels terminal boxes shall be of the thermo plastic type with IP65 protection
-----------	-------------------------------------------------------------------------------------------------------

Preferred makes for BOS :

Array Junction Box IP 65 , 1000 Volt with +/- fuse, SPD	Hensel/Sure/Phonix
DC Connectors -lock in type, IP65	Lapp/Tyco/MC4
DC Cable (1 Core tinned Cu Cable) Between Modules and Array Junction Box	Advance /Siechem
AC cables 4C+1 (Cu) Between Inverter o/p to AC JB	Polycab
LT Panel with MCCB, AC SPD, Bi-directional MFM , MCB, MCCB	Hensel /ABB/Schneider / L & T/
Earthing kits (DC, AC, Structures, Inverter , SPD) Chemical Earthing	Ashlok
GI Flats for earthing	Tata/SAIL
Installation Accessories (Signboard, UV Cable ties...)	

Construction Process:

“Best practices for implementation manual” as per MNRE guide lines must be followed.

Detailed technical specifications

1. Solar Modules:

Solar PV Modules shall strictly adhere to the following standards

Standard	Narration
IEC 61215 / IS 14286	Design qualification and type approval for crystalline silicon terrestrial photovoltaic modules
IEC 61701	Salt mist corrosion testing of photovoltaic (PV) modules
IEC 61853 – Part 1 / IS 16170: Part 1	Photovoltaic (PV) module performance testing and energy rating : Irradiance and temperature performance measurements and power rating
IEC 61730- 1,2	Photovoltaic (PV) Module safety qualification – Part 1 : Requirements for construction, Part -2 : Requirements for testing

Recommended makes: SMA, Delta, ABB, Kaco, Emerson

2. Array Structure:

1. Slanting roof top
2. Aluminum or Hot dipped galvanized elevated super structure for roof top avoiding shadows caused by water tanks & glow sign board. All the fitments of the structure need to be anodized and all nut bolts & washers should be of stainless steel SS304. The structure as a unit along with mounted solar modules needs to withstand 160 km/ hr wind speed.
 - a) Modules shall be mounted on a non-corrosive support structures towards due south and at a suitable inclination to maximize annual energy output.
 - b) Support structures shall be manufactured with Hot Dipped Galvanized MS / Aluminum of suitable size as per the IS standard. Structure shall be designed for mounting of offered Solar Modules with fixed angle best suitable for maximum annual power production.
 - c) The foundation for Module Mounting structures shall be 1:2:4 PCC Construction.
 - d) The Solar panels should be installed on the roof in such a way that it should withstand wind speeds up to 160 Km/hr and should be easily accessible for cleaning SPV panels.
 - e) The space between two consecutive rows should be such that each panel is directly accessible from at least one side and adequate distance between 2 rows for a person to comfortable & stand. The solar panels should be installed in such a way that the shadow of the each row should not fall on other rows.

3. Junction Boxes:

The junction boxes shall be dust, vermin and waterproof and made of FRP / Thermo Plastic. The terminals shall be connected to copper bus bar arrangement of proper sizes. The junction boxes shall have suitable cable entry points fitted with cable glands of appropriate sizes for both incoming and outgoing cables. Suitable markings shall be provided on the bus bar for easy identification and cable ferrules shall be fitted at the cable termination points for identification.

The junction boxes shall be of reputed make and should be as per IP 65 for outdoor, IP 21 for indoor.

The junction boxes shall have suitable arrangement for the Following:

- Combine groups of modules into independent charging sub-arrays that shall be wired to the controller.
- Provide arrangement for disconnection for each of the groups.
- Provide a test point for each sub-group for quick fault location.
- To provide group array isolation.
- The rating of the JB's shall be suitable with adequate safety factor to inter connect the Solar PV array.

4. DC Distribution Board:

- a) DC Distribution panel to receive the DC output from the array field.
- b) DC DBs shall have enclosure of dust & vermin proof conform to IP 65 protection. The bus bars are made of copper of desired size as per IS standards. 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 standards.
- c) It should provide with 3 phase contactor of correct rating with 440 V coil to act as a backup islanding device to the inverter.
- d) All the Panel's shall be metal clad, totally enclosed, rigid, floor mounted, air - insulated, cubical type suitable for operation on three phase or single phase, 415 or 230 volts, 50 Hz.

6. Power Conditioning Unit (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)". The power conditioning unit should be of single / multiple string inverters. The PCU shall also house MPPT (Maximum Power Point Tracker), an interface between Solar PV array & the Inverter, to the power conditioning unit/inverter. Inverter output should be compatible with the grid frequency. Typical technical features of the inverter shall be as follows:

Capacity	: as per schedule
Type	: String Inverter
Switching Devices	: IGBT/MOSFET
Power Control	: MPPT
Nominal AC Output Voltage and Frequency	: 415V, 3 Phase, 50 Hz
Grid Frequency Synchronization Range	: + 3 Hz or more
Ambient Temperature Considered	: -20° C to 50° C
Humidity	: 95% Non-condensing
Protection of Enclosure	: IP-65 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%
THD	: <3%
P.F.	: >0.9 / programmable

- a) Power Conditioning Unit (PCU) shall consist of Inverter shall along with associated control & protection, filtering, measuring instruments and data logging devices.
- b) The PCU shall be designed to supply the three AC power to grid. The rated power/name plate capacity of the inverters shall be the AC output of the inverter at 50°C. Any inverters with AC output at 50°C, below the name plate/rated power of the inverter shall not be allowed.
- c) The inverter supplied shall have minimum of 10% additional DC input Capacity. (E.g. Inverter supplied with rated capacity of 10 kW (AC) shall accept at least 11 kW of DC power.)
- d) Inverter should comply with IEC 61683/IS 61683 for efficiency and measurements and should comply IEC 60068-2(1, 2, 14, 30)/Equivalent BIS Standard for environmental testing.
- e) Inverter should supervise the grid condition continuously and in the event of grid failure or under voltage or over voltage, Solar PV system should be disconnected by the Circuit Breaker or Auto Switch to be provided in the Inverter.
- f) The PCU shall have anti-islanding protection as per IEC 62116 or equivalent international standard.
- g) PCU/inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown.
- h) The PCU shall have protection against any sustained fault, lightning discharge in feeder line and earth leakage faults.
- i) The output of power factor of PCU inverter should be 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.
- j) The inverters shall have minimum protection to IP 65(Outdoor)/IP 21 (indoor) and Protection Class II.
- k) Nuts & bolts and the PCU enclosure shall have to be adequately protected taking into consideration the atmosphere and weather prevailing in the area.
- l) The inverter output shall always follow the grid in terms of voltage and frequency. This shall be achieved by sensing the grid voltage and phase and feeding this information to the feedback loop of the inverter. Thus control variable then controls the output voltage and frequency of the inverter, so that inverter is always synchronized with the grid. The inverter shall be self- commutated with Pulse width modulation (PWM) technology.
- m) Built-in meter and data logger to monitor plant performance.
- n) The PCU shall remain connected to the grid as per central electricity authority (CEA) technical (standards for connectivity to the grid) regulation 2007 with all latest amendments and its component shall be designed accordingly.
- o) The PCU/ inverter should be tested from the MNRE approved test centers / NABL /BIS /IEC accredited testing- calibration laboratories. In case of imported power conditioning unit, these should be approved by international test houses.

7. Integration of Solar PV Power with Grid:

The output power from SPV would be fed to the inverter 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.

8. Remote Monitoring Facilities:

The Power Plants should have suitable inbuilt instrumentation for web based remote monitoring of its Status. Power Plants shall be capable of transmitting its monitorable parameters over GSM/CDMA/GPRS/TCP IP Network and conform to respective standard protocols. The Power Plants shall also have suitable Data Logging & Storage capacity for at least 7 days event logs. The systems should also be able to be monitored in the internet at any time. Internet connection for the same will be provided to the bidder.

9. Metering:

- a) The bidirectional electronic Net/Energy Meter having Class-1/0.5S or better with LT AC 3-Phase 4-Wire CT operated static DLMS & AMR Compliant Energy Meter shall be installed for the measurement of Import/Export of Energy.
- b) Uni-directional Energy Meter along with necessary CTS to be provided on LT side to measure the Energy produced by the SPV Power Plant. The Energy Meters shall be approved by Electricity Department. The said meters are required to be tested in the Testing Division of Electricity Department and the expenditure on testing and calibrating of Energy Meter shall be borne by contractor. In the event "Generation Report" generated by remote monitoring software are acceptable to DISCOM, the separate generation meter may not be provided.

10. Power Consumption:

The generated power consumption, priority need to give for internal consumption of college building first and thereafter any excess power can be exported to grid.

11. Protections:

The system should be provided with all necessary protections like Spike Suppressing device on AC & DC Side, fuses / MCCB, earth, Lightning, and grid islanding as follows:

A. Lightning Protection

Building has been provided with adequate lightning arrestor system recently. In case it is adequate, the same may not repeated by contractor.

B. Surge Protection

SPD (Spike suppressing devices) of adequate ratings needs to be provided on both DC & AC side.

C. Earthing Protection

The array structure of the PV yard shall be grounded properly using adequate number of earthing kits. All metal casing / shielding of the plant shall be thoroughly grounded to ensure safety of the power plant.

- The Earthing for array and distribution system & Power plant equipment shall be made with maintenance free chemical earth including accessories and providing masonry enclosures with cover plate having locking arrangement, watering pipe as per relevant provisions. Necessary provision shall be made for bolted isolating joints of each Earthing pit for periodic checking of earth resistance.
- Each array structure of the SPV yard shall be grounded properly. The array structures are to be connected to earth through 25 mm X 5mm GI strip.
- The inverters and all equipment to be connected to earth through 25mm X 5mm hot dipped GI strip. Minimum two separate earthing strips / connections need to be provided to each metallic part to the earth pit bank on the ground
- In compliance to Rule 61 of Indian Electricity Rules, 2004 (as amended up to date), all non-current carrying metal parts shall be earthed with two separate and distinct earth continuity conductors to an efficient earth electrode.

12. Cables:

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

- i) Shall meet IEC standards.
- ii) Excellent resistance to heat, cold, water, oil, abrasion, UV radiation and Flexible.
- iii) 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.
- iv) The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e. 25years.
- v) Contractor to indicate size and length as per system design requirement.
All the cables required for the plant provided to be the contractor. Any change in cabling sizes if desired by the Contractor, after citing appropriate reasons. All cable schedules/layout drawings approved prior to installation.
- vi) 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%.
- vii) 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 Signage:

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

14. Drawings & Manuals:

- a) Two sets of Engineering, electrical drawings and Installation and O&M manuals are to be supplied. Contractor 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.
- b) Approved ISI and reputed makes for equipment be used.

- c) For complete electro-mechanical works, Contractor shall supply complete design, details and drawings for approval to college before progressing with the installation work
- d) After the installation & commissioning of the system for the benefit of visitors and general public, the Contractor should erect attractive and all weather Description Boards with a concise write-up of the Grid Interactive Solar Rooftop Power Plant along with illustrative diagrams showing the linkage and working of each of its components.

15. Water pipe line:

- a) Contractor shall provide water pipeline of appropriate side along with necessary pump, valves, flexible garden pipe (min 5 M length each) with nozzle at the common point on both north and south side of the terrace.
- b) Rubber mop with sturdy handle with appropriate length – 2 sets needs to be provided to the user at the time of handling over.

MINIMUM REQUIREMENT FOR THE PROJECT :

After evaluating project requirement following items were finalized by the consultant. The interested bidder is supposed to go through the following list which must be supplied for the installation of solar. If additional items besides mentioned below are required, it has to be furnished by the bidder only.

Sl. No.	Item Description	Quantity	Units
1	Solar PV Modules - Mono - 395 wp or above		
1.01	Solar PV Modules - Mono - 395 wp or above for 40 Kwp	102.0000	Nos
1.02	Solar PV Modules - Mono - 395 wp or above for 9.9 Kwp	25.0000	Nos
2	Inverter		
2.01	10 KW / 3 phase	1.0000	Nos
2.02	40 KW or above / 3 phase	1.0000	Nos
3	No of earths		
3.01	Earths for Girl's Hostel	3.0000	Nos
3.02	Earths for Life Sciences Complex	3.0000	Nos
4	AC Cable till Meter		
4.01	Girl's Hostel 10 x 4 AL Armor	42.0000	Meter
4.02	Life Sciences Complex 70 x 3½ AL Armor	170.0000	Meter
5	AC Cable from Inverter to Generation Meter		
5.01	Girl's Hostel 10 x 4 AL Armor	20.0000	Meter
5.02	Life Sciences Complex 70 x 3½ AL Armor	25.0000	Meter
6	Earth Strips 25 x 3 GI		
6.01	Girls Hostel	50.0000	Meters
6.02	Life Sciences Complex	60.0000	Meters
7	Road / Floor Cutting and Making up		
7.01	Girls Hostel	12.0000	Meters
7.02	Life Sciences Complex	20.0000	Meters
8	Excavation (Minimum 2 meter deep) with UPVC pipe enclosure / Half cut cement pipe, bricks and sand	150.0000	Meters
9	Generation Meter		
9.01	Girls Hostel 10-40 Amps. Whole current	1.0000	Nos
9.02	Life Sciences Complex 10-60 Amps. Whole current	1.0000	Nos
10	Net Meter with enclosure box		
10.01	Girls Hostel 10-40 Amps. Whole current	1.0000	No
10.02	Life Sciences Complex 100/5 CT Meter	1.0000	No
10.03	100/5 CT	4.0000	No
11	Protection - MCB/MCCB with enclosure		
11.01	Girl's Hostel 64 Amps	1.0000	No
11.02	Life Sciences Complex 100 Amps	1.0000	No

Sl. No.	Item Description	Quantity	Units
12	Hot dipped galvanised Module Mounting Structure with minimum 80 micron GI coating with 160 km/hr wind pressure withstanding capacity		
12.01	Girls Hostel	1.0000	Set
12.02	Life Sciences Complex	1.0000	Set
13	Foundation - 1:2:4 concrete with appropriate dimensions as required		
13.01	Girls Hostel	1.0000	Set
13.02	Life Sciences Complex	1.0000	Set
14	Lightning Arrester (Minimum 3 meter height) mounted on highest point of north side of the modules.		
14.01	Girls Hostel	1.0000	No
14.02	Life Sciences Complex	1.0000	No
15	DC cables - 4 sqm UV protected in cable duct / UPVC / CPVC pipes as required		
15.01	Girls Hostel	1.0000	Set
15.02	Life Sciences Complex	1.0000	Set
16	DC Fuses, SPD per DC string	10.0000	Nos

Format of site visit report to submit with tender

SITE VISIT REPORT LETTER
(To be submitted on letterhead of bidder)

Date: _____

To
The Principal
Bajaj College of Science
Wardha

Sub. : Site Visit Report for installation of 40 kW and 9.9 kW Grid Connected SPV power plant at two premises of college.

Ref. : Tender No.

Sir,

This has reference to above referred tender of SPV grid connected system of Bajaj Science college, Wardha (Maharashtra) to be commissioned with Solar PV Power plant.

I/we hereby authorize Mr . _____ to visit and inspect site .

Thanking you.

Yours faithfully

(Signature of Bidder)

Sign, of person Visiting site

Name of Bidder -----

Seal:.....

Date of Visit : _____

Signature & Stamp
For Bajaj College

Information to be furnished by the Vendor

1	Name and Registered address	
2	Organizational set up of the firm including names, qualifications and experience of partners / Associates and staff	Details to be furnished in the prescribed proforma (Statement I)
3	Whether Registered (If yes, please enclose copies of relevant supporting documents)	
4	Experience (give number of years)	_____ Years
5	Important large projects executed during last one year by the firm together with approximate cost of the individual project. The full postal address of the clients for whom the works have been executed shall also be given.	Details to be furnished in the prescribed proforma (Statement II)
6	Important large projects on which the firm is engaged at present and their estimated cost. (Stages of work. viz. Planning and Construction). The full address of the clients shall be indicated against each project.	Details to be furnished in the prescribed proforma (Statement III)
7	Important large projects, if any, completed by the partners prior to joining the firm (these projects shall not be included under 5 & 6 above, but shall be shown separately).	Attach a separate sheet
8	Name and address of banker/s of the firm	
9	Turnover of the firm during last 3 years (Year-wise)	

STATEMENT – I

List of technical personnel, giving the technical qualification, experience, including that in the present organization.

Sr. No.	Name	Age	Qualifications	Work Experience	Nature of works handled	Name of the projects handled (capacity more than 50 kwp*)	Date from which employed in the present organization	Indicate special experience, if any
1	2	3	4	5	6	7	8	9

Mention other points, if any, to show technical and managerial competency to indicate any important point in your favor.

Signature of the bidder with
Full address and Office Seal.

STATEMENT - II

**List of Important Projects (capacity 50 kwp or above) executed by the
Organization during the last 03 years.**

Sr. No.	Name of the Project and location	Nature of work involved in contract (eg. residential Office, etc.)	Name of the owner, also indicate whether Govt./ Semi- Govt./ Govt. of India Undertaking or Pvt. Body with full Address	Project cost in lakhs of Rupees	Completion Period		Any other relevant information
					Stipulated	Actual	
1	2	3	4	5	6	7	8

Signature of the bidder with
Full address and Office Seal.

STATEMENT - III

List of Important Projects ON HAND being executed by the Organization during the last 03 year.

Sr. No.	Name of the Project and location	Nature of work involved in contract (eg. residential Office, etc.)	Name of the owner, also indicate whether Govt./ Semi-Govt./ Govt. of India Undertaking or Pvt. Body with full Address	Project cost in lakhs of Rupees	Completion Period		Any other relevant information
					Stipulated	Actual	
1	2	3	4	5	6	7	8

Signature of the bidder with
Full address and Office Seal.

Security Deposit Form

To
The Principal,
Bajaj College of Science,
Wardha.

Where as M/s.....(Name of Supplier) Hereinafter called "the Supplier" has undertaken, in pursuance of Contract No.....dated / /2021 to supply..... (Description of Goods and Services) hereinafter called "the Contract".

And where as it has been stipulated by you in the said contract that the Supplier shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with the supplier's performance obligations in accordance with the contract.

And where as we have agreed to give the Supplier a Guarantee:

Therefore we hereby affirm that we are Guarantors and responsible to you, on behalf of the Supplier, up to a total of Rs. /- (Amount Rs.....) (the Guarantee in Words and Figures) and we undertake to pay you, upon your first written demand declaring the Supplier to be in default under the Contract and without cavil or argument, any sum or sums within the limit of Rs..... (Amount of Guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until theday of.....2021.

Place:-

Date:-

Signature and Seal of Guarantors

(Format of affidavit to be given on Rs. 100 Non-Judicial stamp
paper sworn before Executive Magistrate/Notary Public.)

Affidavit

I, (Name of Contractor/Authorized person) , Aged about..... years, residing at
.....(Postal Address) do hereby swear this affidavit. that, I am the proprietor/Partner of.....(Name of company/firm)
Registered at.....

I do hereby swear that, the documents submitted in envelope No. 1 of the tender document for the work of “ **Design, supply, installation, testing and commissioning with five years comprehensive maintenance of (40+9.9 = 49.9 KWP) Grid Connected SPV (Solar Photovoltaic) power plant under net metering at Bajaj College of Science, Wardha on various buildings**” are true, correct and complete. In case the contents of envelope No. 1 and other document pertaining to the tender submitted by me are found to be incorrect or false, I shall be liable for action under the relevant provision of Indian Penal Code and other relevant laws.

Signature of Authorized person

Applicant/Contractor Name.....

Address.....

.....

Place :

Date :

E-mail.....

Mobile No.....

Website.....