Punyashlok Ahilyadevi Holkar Solapur University, Solapur

E-TENDER FOR

DESIGN, MANUFACTURE, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF 150 KW CAPACITY GRID CONNECTED ROOF TOP SOLAR POWER PLANT OF **MULTIPURPOSE HALL UNDER KHELO INDIA SCHEME** WITH TEN YEARS COMPREHENSIVE MAINTENANCE CONTRACT AT PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

Tender Reference No.

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY

https://mahatenders.gov.in

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1. BID INVITATION

- **Brief Description of the Bidding Process**
- **The REGISTRAR (Punyashlok Ahilyadevi Holkar Solapur University),** on behalf of **PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY (the Purchaser**), invites eligible bidder to submit a bid in accordance with the provisions of this Tender Document. In this Tender Document, the term "Bidder", which expression shall, unless repugnant to the context, include all parties who have submitted bids in response to this Tender Document within the stipulated time frame for submission.
- The Bidders shall submit the bids in two parts by following e-tendering process described in bidding documents. First part comprises of the technical bid and the second part comprise of the financial bid in accordance with this Tender Document.
- In terms of the Tender Document, a Bidder will be required to deposit, along with its Bid, a bid security as Earnest Money Deposit (EMD).
- PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY will open the technical bid of the Bidder, by e-tendering process. The financial bid will be open to those bidders who qualify in technical bid.
- The Bidder's Names, Bid prices and the presence or absence of the requisite and such other details as PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, at its discretion, may consider appropriate will be announced at the time of opening.

2.0 BIDDING INFORMATION

1	Tender Reference No.	PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY / SOLAR / MULTIPURPOSE HALL BUILDING/2025
2	Tender Sale date	17/04/2025 Time: 06.50 PM
3	Last date & Time for submission of Bids	07/05/2025, Time: 04.00 PM
4	Date & Time of opening of Technical Bid	09/05/2025, Time: 03.00 PM
5	Pri-Bid Meeting Date and Time	24/04/2025 Time: 04.00 PM
6	Estimate Cost for Power Plants B) 150 kWp Grid Connected SPV Power Plants	Rs.
7	Earnest Money Deposit (EMD)	Rs.1,00,000/- (Rupees one lakh only) by way of Demand Draft of a scheduled bank drawn in favour of Registrar, Punyashlok Ahilyadevi Holkar Solapur University, Solapur payable at Solapur or by way of Bank Guarantee obtained from any Scheduled Bank valid up to validity period of the tender in the Bank's approved format (in a separate sealed cover), super-scribing 'EMD for Tender for supply and installation of 150 KWp capacity roof top solar power plant at MULTIPURPOSE HALL UNDER KHELO INDIA SCHEME of Punyashlok Ahilyadevi Holkar Solapur University Solapur and the same should be submitted along with Technical & commercial bid.
8	Security Deposit:	5% of contract value by Demand Draft (DD) in favor of REGISTRAR, PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY payable at Pune. It shall be refunded to the contractor without any interest after completion of Warranty period of 5 YEARS after deducting any sum due from the contractor on any account under this contract.
9	Address for communication and Venue for Tender opening	REGISTRAR, PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR Solapur Pune National Highway, Kegaon, Solapur - 413 255. (Maharashtra) Phone No: - 0217/2744771/72. Fax No: - 0217/2744770 E-mail ID: - enggsec@sus.ac.in
10	Tender document fee	Rs. 10,000/- (Rs. Ten Thousand Only) Non-refundable & Non-Transferable)
11	Tender period	120 days

If any technical difficulties arise while filling up e-tender, please contact on toll free No. 1800 3070 2232 at NIC. It is compulsory to pay tender document fee, EMD through E-payment SBI Net Banking or online mode only.

Eligible bidders can upload the Tenders through mahae-tender portal of GoM: https://mahatenders.gov.in details can be obtained from http://sus.ac.in

3.General Rules and Directions for the Guidance of Contractors

1. All works proposed to be executed by contract shall be notified in a form of invitation to tender passed on a board hung up in the office of the Office of **Registrar** and signed by the **Registrar, Punyashlok Ahilyadevi Holkar Solapur University, Solapur** This form will state the work to be carried out as well as the date for submitting and opening tenders, and the time allowed for carrying out the work, also the amount of earnest money to be deposited with the tender and the amount of security deposit to be deposited by the successful tenderer, and the percentage, if any, to be deducted from bills.

   Where the works are proposed to be executed according to the specifications recommended by a contractor and approved by a competent authority on behalf of the Punyashlok Ahilyadevi Holkar Solapur University such specifications with designs and drawings shall form part of the accepted tender.

2. **In the event of the tender being submitted by a firm, it must be signed by each partner thereof, and in the event of the absence of any partner, it shall be signed on his behalf by a person holding a power of attorney authorizing him to do so.**

i. **The contractor shall pay along with a tender the sum of Rs 1,00,000 way of earnest money. Earnest money shall be paid via online using NEFT/RTGS or payment gateway mode. The said amount of earnest money shall not carry any interest whatsoever. The contractor may pay the said amount by forwarding along with the tender "Treasury Challan or short term deposit receipt " for a period of one year of any Nationalized/ Scheduled Bank for the like amount in favour of the Finance and Accounts Officer, Punyashlok Ahilyadevi Holkar Solapur University Solapur. The said amount of earnest money shall not carry any interest what so ever.**

ii. **In the event of his tender being accepted, subject to the provisions of Sub clause below, the said amount of earnest money shall be appropriated toward the amount of security deposit payable by him under conditions of General Conditions of Contract**.

iii. If, after submitting the tender, the Contractor withdraws his offer or modifies the same, or if, after the acceptance of his tender the Contractors fails or neglects to furnish the balance of security deposit without prejudice to any other rights and powers of the Punyashlok Ahilyadevi Holkar Solapur University, hereunder, or in law, Punyashlok Ahilyadevi Holkar Solapur University shall be entitled to forfeit the full amount of the earnest money deposited by him.

iv. In the event of his tender not being accepted, the amount of earnest money deposited by the contractor shall, unless it is prior thereto forfeited under the provisions of Sub-clause (iii) above, be refunded to him on his passing receipt therefore. (Amended vide G.R., B & C Department's No. CAT 1272/44277-C, dated 3/3/1973.)

v. Receipts for payments made on account of any work, when executed by a firm, should also be signed by all the partners except where the contractors are described in their tender as firm, in which case the receipt shall be signed in the name of the firm by one of the partners, or by some other person having authority to give effectual receipts for the firm.

3. **Any person who submits a tender shall fill up the usual printed form stating at what Price he is willing to undertake the work**. Tenders which propose any alteration in the work specified in the said form of invitation to tender, or in the time allowed for carrying out the work, or which contain any other conditions of any sort will be liable to rejection. No printed form of tender shall include a tender for more than one work, but if Contractor who wish to tender for two or more works shall submit a separate tender for each. Tender shall have the name and the number of work to which they refer written outside the envelope.

4. The **Registrar** or his duly authorized assistant shall open tenders in the presence of the Contractors who have submitted their tender or their representatives who may be present at the time and he will enter the amounts of the several tenders in comparative statements in a suitable form. In the event of a tender being accepted, the Contractor shall, for the purpose of identification, sign copies the specifications and other documents mentioned in Rule1. In the event of a tender being rejected, the Finance and accounts Officer shall refund the amount of earnest money deposited by the contractor online.

5. **The Registrar shall have the rights of rejecting all or any of the tenders.**

6. No receipt for any payment alleged to have been made by a Contractor in regard to any matter relating to this tender or the contract shall be valid and binding on the Punyashlok Ahilyadevi Holkar Solapur University unless it is signed by the Registrar.

7. If a form issued to an intending tenderer has not been so filled in and completed, he shall request the said office to have this done before he completes and delivers his tender.

8. **Under no circumstances shall any Contractor be entitled to claim enhanced rates for items in this contract.**

9. **Every registered Contractor should produce along with his tender certificate of registration as approved Contractor in the appropriate class and renewal of such registration with date of expiry.**

10. **All corrections and additions or pasted slips should be initialed.**

11. The measurements of work will be taken according to the usual methods in use in the Punyashlok Ahilyadevi Holkar Solapur University no proposals to adopt alternative methods will be accepted. The University Engineer decision as to what is "the usual method in use in the Punyashlok Ahilyadevi Holkar Solapur University" will be final.

12. **A tendering Contractor shall furnish a declaration along with a tender showing all works for which he has already entered into contract, and the value of the work that remains to be executed in each case on the date submitting the tender.**

13. **Every tenderer shall furnish along with the tender, information regarding the Income Tax Circle or Ward of the District in which he is assessed to Income Tax, the reference to the number of the assessment and the Assessment Year and a valid Income Tax Clearance Certificate or True Copy thereof duly attested by Gazetted Officer. Permanent Account Number (PAN) No.**

14. **The Contractor will have to construct shed for storing controlled and valuable materials.**

15. The Contractors shall also give a list of machinery in their possession and which they propose to use on the work in the form of Statement No. II.

16. Every registered Contractor should furnish along with the tender a statement showing previous experience and technical staff employed by him , in the Form No. V.

17. Successful tenderer will have to produce to the satisfaction of the accepting authority a valid and current license issued in his favour under the provisions of Contract Labour (Regulation and Abolition) Act, 1973 before starting work failing which acceptance of the tender will be liable for withdrawal and earnest money will be forfeited to the Punyashlok Ahilyadevi Holkar Solapur University. (Reference Government of Maharashtra, Irrigation & Power Department's letter No. LAB 1076/1181/(666E-(17), dated 8/9/1976).

18. The Contractor shall comply with the provisions of Apprentices Act, 1961 and the rules and the orders issued there under from time to time. If he fails to do so, his failure will be breach of the contract and the Registrar, may in his discretion cancel the contract. The contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provisions of the Act.

Signature of Contractor No. of Corrections Registrar

4.0 SPECIFIC TERMS AND CONDITIONS

The specific terms and conditions are concerned to project specific issues and clarifications for tenderers who are responsible to submit the bid only after carefully reading and carrying out the site visit to get acquainted with the site conditions.

4.1 Eligibility Criteria :

1. **Tenderer fulfills the terms and conditions of eligibility as an indigenous/ Imported manufacturer/ system integrator of Solar PCU/PV Systems in accordance with the guidelines of Ministry of New and Renewable Energy, Government of India.**

2. **Tenderer has adequate capacity available, to perform the works properly and expeditiously within the time frame specified in the tender document.**

3. **Tenderer has established quality assurance systems and organization designed to achieve high level of equipment reliability in manufacturing of the Solar Systems.**

4. **Tenderer should have completed one single 150 kwp On grid solar in Govt/ public sector in last two years. Need to enclose performance / completion certificate.**

5. **The tenderer should visit the site and get the site inspection report from the University Engineer and same need to be uploaded (as per FORMAT:5.8) Otherwise, tender will be disqualified.**

6. **The tenderer should visit the site before the due date of the tender for the site inspection and upload the site inspection document in the technical bid. The inspection report should have PV panel, Inverter ACDB, and DCDB fixing diagram.**

7. **Tenderer should have adequate financial stability and status to meet the financial obligations Pursuant to the scope of work. Must have annual turnover of minimum Rs. 5 crores in past three financial years i.e., 2020-21, 2021-2022, 2022-2023 and 2023-2024. Relevant documents certified by a Chartered Accountant shall be enclosed.**

8. **Bidder / OEM has to have adequate field service setup within 100 kms area to provide good service after sale services including necessary repair and maintenance. Service center address with contact number & contact person to be given.**

9. **Tenderer has to provide valid IEC test certificates of the solar PV panel and Grid Tied Inverter.**

10. **Tenderer has to provide valid BIS certificates of the solar PV panel and Grid Tied Inverter**

11. **OEM / Bidder Should be an Indigenous or Imported PV / PCU manufacturer.**

12. **Bidder / OEM should have minimum 10 years' experience in the Solar system and should posses CRISIL rating AAA . Relevant documents need to attach as a Proof.**

The tenderers are requested to submit all the documents required for stipulated eligibility criteria at the first instance itself. **Tenders which do not contain the documents required for stipulated eligibility are liable to be summarily rejected.**

4.2 Bid Submission Procedure

A) **Scope of work** covers for Design, Supply, Installation, Testing, Commissioning &10 years Maintenance of Grid Connected 150 KWp capacity rooftop solar power plant on rooftop of Multipurpose Hall Under Khelo India Scheme of Punyashlok Ahilyadevi Holkar Solapur University, Solapur. Any deviation will not be accepted under any circumstance. Insuring the goods in transit as well as the commissioned system during 10 years comprehensive maintenance period is the responsibility of the tenderers. The comprehensive maintenance shall include preventive maintenance service visits monthly till the completion period of comprehensive maintenance. The maintenance shall include replacement of all parts or components found defective due to manufacturing defect or because of wear and tear. If the SPV Power Plants are not functional, the same should be repaired or restored or replaced within 2 days.

B) Tender documents consisting of specifications, schedule of quantities of the various items of work to be done and the set of terms and conditions of contract to be complied with by the contractor whose tender may be accepted and other necessary documents will be sent **through registered post**.

C) The tender concept is **"TWO ENVELOPE CONCEPT"** and it has to be submitted as such. It should be always be placed in sealed cover, with the name of the project written on the envelope mentioning "Technical Bid" and "Financial Bid" as the case may be and submitted in two different sealed envelopes simultaneously on the prescribed date and time mentioned in the Notice Inviting Tender (NIT) to the Registrar, Punyashlok Ahilyadevi Holkar Solapur University, Solapur.

D) The date for opening the Financial Bid will be intimated subsequently only to such firms whose technical bids are found suitable. The TENDERER is requested to participate during the opening of the tender.

The bidder must purchase the bidding documents via online mode by filling the cost of Tender

E) The two envelope are classified as,
   a. The Technical Bid and
   b. The Financial BID.

F) The **first envelope (ONLINE ENVELOPE NO. 1)** super-scribed as "Technical Bid" should be submitted in a sealed envelope containing all the following details:

G) All the schedules of the tender document, tender drawings if any & technical & commercial details of the proposed system equipment with its components & all other attachments other than the Bill of Quantity (Financial Bid).

H) The tender, (i.e. in the envelope containing the Technical Bid) shall be accompanied by earnest money of Rs. 1,00,000/- (Rupees one lakhs only) by way of Demand Draft of a Scheduled Bank issued in favour of "Finance and Account officer, Punyashlok Ahilyadevi Holkar Solapur University, Solapur" payable at Solapur or by way of Bank Guarantee obtained from Scheduled Bank valid up to validity period of the tender in the University's approved format. However, those who have exemption certificate from NSIC/Similar Government authorities as per provision of MSME Act will be exempted from submission of EMD subject to the submission of valid document/certificate to that effect. **No interest shall be allowed on the Earnest Money. Tenders without Earnest Money shall be rejected.**

I) **SUBMISSION OF THE EMD IN THE FINANCIAL BID ENVELOPE SHALL RENDER THE TENDER BEING REJECTED ON THE GROUNDS OF NON SUBMISSION OF THE EMD.**

G) Following Document to be attached :-

1. Scanned copy of document showing Tenderer fulfilling the terms and conditions of eligibility as an indigenous manufacturer/ system integrator of Solar PCU/PV Systems in accordance with the guidelines of Ministry of New and Renewable Energy, Government of India.

2. Scanned copy of documents showing turnover of Tenderer is more than Rs.1.5 crores in past three financial years i.e., 2021-2022, 2022-2023 and 2023-2024. Relevant documents certified by a Chartered Accountant shall be enclosed.

3. Scanned copy of documents showing Tenderer have Executed at-least one on Grid Solar PV systems of 150 KW capacity project in last two years . Enclose the performance certificates for such orders executed.
4. Tenderer has to submit the authorisation letter of OEM towards PV module, Remote monitoring system and String inverter which is mandatory as these systems are important.

5. Scanned copy of documents Tenderer has adequate field service setup to provide good after sale services including necessary repair and maintenance. Service centre address with contact number & contact person to be give.
6. Scanned copy of PAN number, Acknowledgement of I.T. Returns and balance sheet of previous three financial years.
7. Balance Sheet and Profit & Loss accounts for the past three year should be submitted.
8. Scanned Copy of Details of the other works tendered for and in hand with the value of the work unfinished on the last date of acceptance of tender (in Form No.1).The certificate from the head of the offices under whom the works are in progress should be enclosed.
9. Scanned copy of Details of technical personnel on the rolls of tenderer
10. Scanned copy of Attested copy of Registered Partnership Deed, if the tenderer is a partnership firm and Power of Attorney.
11. Scanned copy of GST registration Certificate and clearance Certificate.
12. Scanned copy of Valid Professional Tax registration Certificate and Professional Tax Clearance certificate with list of employees duly attested by professional Tax Officer..
13. Scanned copy of forwarding letter
14. Numbering should be done for all papers containing in Envelope No. 1 (all these things should be in one file.

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J) The **second envelope** super scribed as "FINANCIAL BID" should be sealed and submitted as per the following conditions:

a. The FINANCIAL BID in a separate sealed envelope should be submitted on the same given date and time simultaneously along with technical & commercial bid. Non submission of the same

along with technical and commercial bid shall automatically render the entire tender being rejected. This envelope should contain duly filled in Bill of quantities (enclosed in the tender document) with values written in words and figures, and as detailed elsewhere in the tender documents.

b. The contractors should quote the Price of total project including the cost of comprehensive maintenance. The amount for each item should be worked out and the requisite totals given. The rates quoted shall be inclusive of all taxes and the rates quoted shall be all inclusive rates for the item of work described, including materials, labour, tools & plant, carriage & transport, supervision, overheads & profits, mobilising and other charges whatsoever including any anticipated or un-anticipated difficulties etc. complete for proper execution of the work as per drawings and specifications and no claim whatsoever for any extra payment shall be maintainable.

c. When a contractor signs a tender in an Indian language, the Price and total amount tendered should also be written in the same language. In the case of illiterate contractors the rates or the amounts tendered should be attested by a witness.

d. All the price shall be quoted on the proper form of the tender alone. Quoted rates and units different from prescribed in the tender schedule will be liable for rejection.

e. Special care should be taken to write the Price in figures as well as in words and the amounts in figures only, in such a way that interpolation is not possible. However, if a discrepancy is found;

   i. the rates which correspond with the amount worked out by the tenderer shall unless otherwise proved be taken as correct. (OR)

   ii. if the amount of an item is not worked out by the tenderer or it does not correspond with the rates written either in figures or in words then the rate quoted by the tenderer in words shall be taken as correct. (OR)

   iii. where the rates quoted by the tenderer in figures and in words tally but the amount is not worked out correctly, the rates quoted by the tenderer will unless otherwise prove be taken as correct and not the amount.

f. In the case of any errors or omissions in the quoted rates, and if the tender is issued in duplicate, the rates quoted in the tender marked "Original" shall be taken as correct rates.

g. All corrections such as cuttings, interpolations, omissions and over-writings shall be number as `c',`i',`o' and `ow' and initialed and total of such c, i, o and ow on each page certified at the end of the page with grand total at the end of the bill/schedule of quantities.

h. Sales tax, service tax, work contract tax, or any other tax , any royalties, import duty, other duties if any, levies, cess, entry tax, Octroi, profession tax, Sales Tax, purchase tax, turnover tax, or any other tax on material or finished work in respect of this contract shall be payable by the tenderer and the Purchases will not entertain any claim whatsoever in respect of the same, and nothing extra shall be paid/reimbursed for the same subsequently.

K) Earnest Money, Retention Money & Performance Security Deposit:

a. The tenderer will have to deposit the specified amount of earnest money as detailed in the notice inviting tender at the time of submission of tender.

b. No interest will be paid on the earnest money. The earnest money of unsuccessful tenderers will be refunded without any interest soon after the decision to award the work is taken or after the expiry of the validity period of the tender upon receiving written request from tenderer.

c. The successful tenderer to whom the contract is awarded will have to deposit a security deposit of 5% of the tender cost (including the Earnest Money) . The Security Deposit will have to be made within 14

days from the date of acceptance of tender, failing which the Purchases at his discretion, without prejudice to any other rights/remedies available under the terms of this Contract may revoke the letter of acceptance and forfeit the Earnest money deposit furnished along with the tender. The Security Deposit will not yield any interest & shall be held at Punyashlok Ahilyadevi Holkar Solapur University's end for the duration of the warrantee period. It shall be refunded to the contractor without any interest after completion of Warranty period of 5 YEARS after deducting any sum due from the contractor on any account under this contract

e. Retention money: 5 % of bill amount will be deducted from each bill. This can be refunded after satisfactory Guaranty period i.e. 1% every year after completing 5 years warranty period. No interest shall be paid on retention money.

4.3 Technical Specifications

The scope of work covers: Design, Supply, Installation, Testing & Commissioning and maintenance. It includes 10 years comprehensive AMC for Grid Connected SPV power plant at Punyashlok Ahilyadevi Holkar Solapur University, Solapur on rooftop of MULTIPURPOSE HALL UNDER KHELO INDIA SCHEME with following features.

1. The system shall feed the solar energy to the load and excess power will feed to the grid.
2. In case of low solar irradiation or cloudy weather, the deficit power is taken from the grid or DG.
3. System configuration must conform to Indian grid system (3-phase, neutral & earth).

The major, but not limited to, Technical Specifications enumerated below should be followed during various stages like design, construction, commissioning and maintenance.

WARRANTIES:-

A. The warrantee for the 150 KWp Solar rooftop plant should be minimum 5 years from the date of installation of the power plant.

B. Degradation of power generated should not be exceeding 20% of the min. rated power over a 25 year period.

C. Efficiency of solar PV system shall be guaranteed to 90% for up to 10 years & 80% for up to 25 years.

D. After installation of the power plant during 5 years warranty period if the plant failed to work, it will be the full responsibility of the contractor to bear the repair cost of the same and make the plant working.

E. The total project installation should be as per the latest technology.

A) Solar Photo Voltaic Modules

i. Solar photo voltaic module array shall consist of high efficiency Solar Modules utilizing Mono Crystalline high power Silicon Solar Photovoltaic cells.
ii. Solar photovoltaic module capacity shall not be less than 400 Wp at STC.
iii. Solar module shall be laminated using lamination technology using established polymer (EVA) and Tedlar / Polyester laminate. Anti-reflection coating to be applied on cells to improve light absorption and to increase cell performance.
iv. The modules shall be connected in suitable series / parallel combination to meet the voltage / current requirements of the Inverter units.
v. Solar Photovoltaic module efficiency shall be minimum 15% and power tolerance shall be in the range of 0 to +3%.The temperature co-efficient of power for PV modules should be less than or equal to -0.45% per deg C.
vi. The rated output power of any supplied module shall not have negative tolerance.
vii. Module shall be made of high transmissivity glass front surface giving high encapsulation gain and hot butyl rubber edge sealant for module protection and mechanical support.
viii. All materials used must have a proven history of reliable and stable operation in external outdoor applications.
ix. Solar modules shall be designed to operate and perform in relative humidity up to 85% with temperatures between -40 Deg C and +85 Deg C and with stand gusts up to 150 km/h from back side of the panel.
x. The Solar PV modules and production processes employed in the manufacture of the offered module shall be in accordance with the requirements of IEC 61215 Ed 2 , IEC 61730 Part 1 & 2, IEC 61701 for operation in corrosive atmosphere.
xi. SPV Modules shall be certified by NABL/IECQ accredited test centre. Copy of the above IEC Certifications must be provided along with offer. Undertaking from manufacturer / supplier that the modules being supplied are as per above shall also accompany the offer.
xii. The module frame must be made of corrosion resistant materials, which is electrolytically compatible with the structural material used for mounting the module.
xiii. Module Junction box shall of Flame proof / Explosion proof type be designed for long life outdoor operation in harsh environment and shall be IP 65 or better.
xiv. Degradation of power generated should not be exceeding 20% of the min. rated power over a 25 year period.
xv. Efficiency of solar PV system shall be guaranteed to 90% for up to 10 years & 80% for up to 25 years.
xvi. The PV modules shall be equipped with bypass diode to minimize power drop caused by shades.
xvii. The solar modules shall have suitable encapsulation and sealing arrangements to protect the silicon cells from the environment. The arrangement and the material of encapsulation shall be compatible with the thermal expansion properties of the Silicon cells and the module framing arrangement / material. The encapsulation arrangement ensures complete moisture proofing during life of the solar modules.
xviii. Each module must have low iron tempered glass front for strength and superior light transmission. It also must have tough multilayered back sheet for environment protection against moisture and high voltage electrical insulation.
xix. The fill factor of modules shall not be less than 0.70.
xx. The Max. System Voltage of the modules used shall be 1000-V DC.
xxi. Each PV module shall have an RF identification tag (RFID) fixed inside the module laminate, but able to withstand harsh environmental conditions, containing following information.

- Name of manufacturer of PV Module
- Name of manufacturer of Solar cells
- Month & Year of manufacture (separately for Solar cells & module)
- Country of origin (separately for Solar cells & module)
- I-V Curve for the module
- Peak wattage Im, Vm and FF for the module
- Unique serial no. and model of the module
- Date and year of obtaining IEC PV module qualification certificate
- Name of the test lab issuing IEC certificate
- Any other relevant information on traceability of solar cells and module as per ISO 9000 series.

xxii. Modules shall be North-South oriented.

xxiii. MCB of suitable rating to be provided for connecting / disconnecting solar array and PCU for maintenance purposes.

xxiv. The Solar PV Modules shall meet all the requirements of latest MNRE guidelines.

xxv. Mechanical Features

- Solar Photovoltaic Module shall be made of toughened, low iron content, high transmissivity front glass.
- Anodized Aluminum Frame shall be provided around the module.
- The module shall be encapsulated with Ethyl Vinyl Acetate (EVA).
- Silicon edge sealant shall be provided around laminate.
- The back surface shall be Tedlar /Polyester trilaminate.
- Weather proof (IP 65) terminal box shall be provided for the module output terminations.
- The module shall be Resistant to water, abrasion, hail impact, humidity & other environmental factors for the worst situation at site.
- Bypass diode arrangement shall be provided.
- All nuts and bolts shall be made of very good quality stainless steel (SS 304 minimum)

xxvi. Marking:

Each module shall carry the following clear indelible markings as minimum:

- Name, monogram of manufacturer
- Type or module number
- Module serial number
- Polarity of terminals
- Maximum system voltage for which module is designed
- Date and place of manufacture

B) Module Mounting Structure

i. Module Mounting Structure should be as per MNRE specifications and supply & installation shall be in scope of contractor.

ii. The structure shall be designed in accordance with the latitude of the place of installation. The array mounting structure shall be designed to allow easy replacement of any module and shall be in line with site requirement. Structure shall be designed for simple mechanical and electrical installation. It shall support SPV modules at a given orientation, absorb and transfer the mechanical loads to the ground properly.

iii. The array structure shall have tilt arrangement to adjust the plane of the solar array for optimum tilt.

iv. The array structure shall be made of hot dip galvanized MS angles/anodized aluminum. The minimum thickness of galvanization shall be at least 80 microns. All nuts & bolts shall be made of very good quality GI. The minimum clearance of the lowest part of the module structure and the developed ground level shall not be less than 500 mm.

v. Leg assembly of module mounting structure made of different diameter galvanized tubes are accepted. The work should be completed with supply, fitting fixing of clamps, saddles, nut & bolts etc. While quoting the rate, the contractor may mention the design & type of structure offered. All nuts & bolts shall be made of very good quality stainless steel.

vi. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from SPV panels at the same time it will withstand wind speed up to maximum of 150 km/hr.

vii. The contractor shall specify installation details of the PV modules and the support structures with appropriate diagrams and drawings after receiving the offer.

viii. The structure layout drawings along with shading calculation and detailed design shall be submitted to banker for approval after receiving the offer.

ix. PCC ARRAY FOUNDATION BASE: The legs of the structures made with GI angles will be fixed and grouted in the PCC foundation columns made with 1:2:4 cement concrete. The minimum clearance of the lowest part of any module structure shall not be less than 500 mm from ground level. While making foundation design, due consideration shall be given to weight of module assembly, maximum wind speed of 150 km/hr and seismic factors for the site.

x. The contractor should visit the site before quoting the rate for civil works. After taking in to consideration all aspects of the site, condition of roof etc., the contractor shall quote for civil works. No extra claim shall be entertained at post project stage.

xi. The foundation design of module structure design shall be submitted for approval. The work will be carried out as per designs approved by University. The contractor shall specify installation details of the PV modules and the support structures with appropriate diagrams and drawings. Such details shall include, but not limited to, the following;

1. Determination of true south at the site;
2. Array tilt angle to the horizontal, with permitted tolerance;
3. Details with drawings for fixing the modules;
4. Details with drawings of fixing the junction/terminal boxes;
5. Interconnection details inside the junction/terminal boxes;
6. Structure installation details and drawings;
7. Electrical grounding (earthing);
8. Inter-panel/Inter-row distances with allowed tolerances; and
9. Safety precautions to be taken.

xii. The array structure shall support SPV modules at a given orientation and absorb and transfer the mechanical loads to the rooftop columns properly. All nuts and bolts shall be of very good quality stainless /galvanized steel.

xiii. Incase of any defects arising in the building during guarantee period of Five year, the contractor shall rectify the same at their own cost.

C) DC Combiner Box/Array Junction Box

The junction boxes shall be dust proof, vermin and waterproof and made of FRP/powder coated Aluminium.

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 and earthing provision shall be available. 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. Each main junction box shall be fitted with appropriate rating blocking diode. The junction boxes shall be of reputed make and conform to IP65 standards and IEC 62208. Door shall be of hinged door with EPDM rubber gasket to prevent water entry.

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.
- Suitable capacity MOVs shall be provided within the box to protect against lightning

Fuse Protection on Strings: DC fuses rated from 2A to 25A from leading manufacturers to be used in the combiner box to provide over-current protection. Fuses to be provided with indication.

Surge Protection Device: Surge Protection devices or SPD to be provided to protect the combiner/junction box from any power surge and voltage spike. SPD to be used should meet Type 2 regulations, and to be typically rated between 600 to 1000V.

Input Glands/ Connectors: The combiner/ array junction box offered is to be provided with IP 67 rated Cable Glands or MC 4 connectors at the input side to lead the array strings into the box.

D) Grid Interactive Inverter/PCU

i. The Power Conditioning Unit comprises the Inverter(s) and associated MPPT, control, protection, data logging devices etc.

ii. Solar array shall produce DC energy output which shall be supplied to the DC bus for inverting to AC voltage. Maximum Power Point Tracking (MPPT) system shall be an inherent feature of the system and shall be used to extract maximum energy from solar array to produce 415 VAC 3 ph 50 Hz output. The output shall be synchronized with the station's grid power.

iii. The system shall generate power for use during the day-light hours directly by the captive load.

iv. The peak efficiency of PCU shall not be less than 97% & shall be designed to meet the Solar PV Array capacity control which will extract maximum energy from solar array and provides 415V

AC +/-10%, 50HZ, to synchronize (and not export) with local utility grid in Indian ambient conditions.

v. The efficiency of PCUs at INSULATION levels of 10% to 90% shall not be less than 90%.
vi. Output of Inverter shall be 3 phase, 415 v +/- 10%, 50 Hz sine wave with < 3% total harmonic distortion (THD). Additionally, it will provide protection features such as over current, short circuit, over temperature as a minimum.
vii. PCU shall be of very high quality having high peak efficiency of 97% and above. The PCU should be completely compatible with the SPV array voltage and local grid / DG supply voltage.
viii. Switching shall be IGBT based.
ix. Idle current shall be less than 4% of rated capacity.
x. The PCU shall be string type inverters to reduce the DC power losses & can have the flexibility to increase the capacity of the plant.
xi. The PCU shall be designed for continuous, reliable power supply as per specifications.
xii. The PCU shall be capable of complete automatic operation and shall be capable to synchronize independently & automatically with the grid supply and DG Supply. The idea for installing SPV unit is to be utilize whatever power is available and directly feed into the system irrespective of whether grid supply is 'ON' or DG is 'ON' on SOLAR FIRST basis.
xiii. The PCU shall have a built-in data logging facility to remotely monitor and control plant performance through external PC.
xiv. The PCU shall have internal protection arrangement against any sustained fault. The dimension, weight, foundation details etc. of the PCU shall be clearly indicated in the detailed technical specification provided by the contractor.
xv. It has user friendly LED / LCD Graphical display for programming and viewing of the Solar system parameters and protection status.
xvi. The operating temperature range shall be -20 to +50 deg C
xvii. Housing cabinet – IP-20(Minimum) for indoor, IP-65(Minimum) for outdoor
xviii. Power factor shall be greater than 0.9
xix. Cooling shall be forced air cooling through cooling fan.
xx. The system shall be capable of automatic operation with automatic wake-up in the morning and providing supply to the load after synchronizing with Grid/DG supply.
xxi. When the generated power is below a low, preset value or the solar insolation is below a set value for a pre-determined amount of time, the inverter shall be disconnected from the grid and shall be operated in a "sleep mode". In this mode, the inverter power stage components shall be switched off, thereby keeping the stand by losses to a bare minimum.
xxii. Unique MPPT algorithm shall adjust the DC Link operating voltage to ensure that maximum power is extracted from the solar array in an efficient manner.
xxiii. Automatic "Sleep Mode" shall be provided to reduce standby losses.
xxiv. The system shall be designed to minimize both conducted and radiated RFI emissions.
xxv. The capacity of the Inverter shall be chosen based on the PV system wattage. However, the total Peak output Power rating of all the PCU's at operating temperatures of 45 deg C shall not be less than 150 KW.
xxvi. Overload protection shall be min. 150% for one minute.
xxvii. The inverter must have a DC disconnect switch / device.
xxviii. MCB of suitable rating to be provided for connecting / disconnecting Load and PCU.
xxix. The inverter must have an integrated MODBUS RS-485 interface for connectivity.

xxx. Potential free contact shall be provided for the 'Solar system operation status' for remote monitoring.

xxxi. The PCU shall meet all the requirements of latest MNRE guidelines.

E) Indications

- Inverter on
- Grid on
- Inverter under voltage / over voltage
- Inverter over load
- Inverter over temperature

F) Protections

- Over voltage at input
- Over current at output
- Over / under output voltage
- Over / under grid frequency
- Over temperature
- Short circuit
- DC reverse polarity
- Protection against lightning
- Surge voltage protection

G) Remote Monitoring

- DC power input
- DC input voltage
- DC input current
- AC power output
- AC voltage
- AC current
- AC frequency
- Power factor
- Energy harvested daily / monthly / yearly
- Inverter status
- Total power generated/operation time

Remote Monitoring System (RMS) should of the standard of Industry 4.0, i.e

- It should be automating tasks,
- analysis data and
- make predictions using AI (Artificially Intelligence) and
- Cloud base storage

so data can be accessible from anywhere. anytime

The device must contain communication versatile ports such as LAN, fibre optics, BLE, WIFI, 4G GSM SIM, CAN etc.

RMS should display data of Solar Power plant, Genset, LT Panel and APFC panel on single gateway and it should be easily integrated with other IOTs and ERP systems.

The PCU including MPPT and protection shall conform to IEC 61683 / IS 61683, IEC 60068–2 / equivalent BIS standards.

H) Data Monitoring of Solar Power Plant

The system performance monitoring and solar generation data is recorded using a datalogger. The Monitoring system shall comprise of the following main components:

- PCU logs the inverter performance data and transmits the same to the Data logger.
- Data monitoring system logs irradiance (solar insulation) and ambient temperature. Necessary sensors required for the same shall be provided by the Contractor and sensor outputs interfaced to the Solar monitoring system
- Data logger gathers information and monitors the performance of the inverter. It also supports measurements from the external sensors. The data can be acquired through Ethernet port (RJ45) and shall be available to connect to Univesity network.
- The data acquisition system shall have a real-time clock and data storage capacity for recording data round the clock for min. one year.
- The monitoring of the Solar system and logging / viewing of system data shall be done through a PC with HMI software to be supplied by the Contractor.
- PC Data logging software enables automatic long-term storage of measured data from SPV Plant. It allows visualization, monitoring, commissioning and service of the installation.
- The software package shall be preferably windows based.
- The Solar system data shall be logged in chronological order, date wise. The periodicity of data logging shall be configurable.
- Event logging shall be adjustable repetition from 01 second to 600 Seconds, with storage capacity up to 03 Years with 10 minute logs.

I) AC Distribution Board (ACDB)

An AC distribution box shall be provided between the Inverter and the existing LT Panel of r. This panel shall have provision for protection, connection and disconnection ofindividual inverters from the AC system.

The AC Box will be used to combine AC power coming from the inverters.

- The AC Box shall be dust, vermin & water proof & made of FRP / ABS plastic.
- 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.
- It should have the facility to protect from over currents & isolate the AC box from the main AC line.
- The AC Box should have surge protection devices, to protect inverters from surges in the AC line.
- For service & emergency safety requirements, the circuit breakers / load– break switches must have facility for remote operation.
- The Solar Power should be exported to the LT Panel bus bar through a Energy Meter. The Energy meter should have Modbus RS- 485 communication interface.
- All switches and the circuit backers, connectors should confirm to IEC 60947 , part I,II & III / IS 60947 / part I , II & III.

- All indoor panels will have protection of IP54 or better. All out door panels will have protection of IP 65 or better.
- Should confirm Indian electricity act & rules (till last amendment).
- Metering at Generation side : It should be DC watt hour meter with USB port facility – 01 number.

J) Cables and Accessories

1.1. Cables should be PVC insulated Copper Conductor armoured Cables of 1100 V
1.2. grade and shall conform to IS: 1554 / IEC 60502 AND IS 694 / IEC 60227.
1.3. Cable should be Bright Annealed 99% pure Copper Conductor. Conductor shall be of electrolytic copper confirming to IS: 8130
1.4. Cables shall be UV and weathering resistant.
1.5. Voltage drop & losses to be kept to minimum. On DC side voltage drop to be max 1%.
1.6. Cables shall be laid on prefabricated GI cable trays and through suitable HDPE pipes.
1.7. All interfaces between panel integral cable and extension cable must be done using MC4 equivalent connectors only.
1.8. The make of the cables should be Polycab / Finolex / Anchor.

K) Earthing and Lightning Protection

Earthing Protection:

Each array structure of the PV yard should be grounded/ earthed properly as per IS:3043 -1987. In addition the lighting arrester/masts should also be provided inside the array field. Provision should be kept for shorting and grounding of the PV array at the time of maintenance work. All metal casing/shielding of the plant should be thoroughly grounded in accordance with Indian Electricity Act/IE Rules. Earth Resistance shall be tested in presence of the representative of University as and when required after earthing by calibrated earth tester. PCU, ACDB and DCDB should also be earthed properly. Earth resistance shall not be more than 5 ohms for individual pit and shall be less than 1.0 Ohms for Grid in line. It shall be ensured that all the earths are bonded together to make them at the same potential. The earthing conductor shall be rated for the maximum short circuit current, and shall be 1.56 times the short circuit current. The area of cross -section of conductor shall not be less than 1.6 sq mm in any case. The earthing pits shall be made at locations approved by University.

Lightning protection.

There shall be the required number of suitable lightning arrestors (ESE) installed in the array area. Lightning protection shall be provided by the use of metal oxide arrestors and suitable earthing such that induced transients find an alternate route to earth. Protection shall meet the safety rules as per Indian Electricity Act2003/IE rules. The entire space occupying the SPV array shall be suitab lyprotected against Lightning by deploying required number of Lightning Arrester. Lighting protection should be provided as per ICE 62305 standard.

SURGE PROTECTION:-

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

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

A manual disconnect 4-pole isolation switch beside automatic disconnection to grid would have tobe 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.

CABLES

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

- Shall meet IEC 60227/IS 694, IEC 60502/IS 1554
- Temp. Range : -100C to +800C
- Voltage rating 660/1000V
- Excellent resistance to heat, cold, water, oil, abrasion, UV radiation
- Flexible
- Sizes of cables between array interconnections, array to junction boxes, junction boxes,to inverter etc. shall be so selected to keep the voltage crop (Power loss) of the entire solar system to the minimum(2%)
- For the DC cabling, XLPE or XLPO insulated and sheathed, UV-stabilized single core multi-stranded flexible copper cables shall be used; Multi-core multi-stranded flexible copper cables shall be used; Outdoor AC cables shall have a UV-stabilized outer sheath.
- The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use. Outer sheath of cables shall be electron beam cross-linked XLPO type and black in colour.
- The DC cables from the SPV module array shall run through a UV-stabilized PVC conduit pipe of adequate diameter with a minimum wall thickness of 1.5mm.
- Cables and wires used for the interconnection of solar PV modules shall be provided with solar PV connectors(MC4) and couplers.
- All cables and conduit pipes shall be clamped to the rooftop, walls and ceilings with thermo-plastic clamps at intervals not exceeding 50 cm; the minimum DC cable size shall be 4.0 mm^2 copper; the minimum AC cable size shall be 4.0 mm^2 copper. In three phase systems, the size of the neutral wire size shall be equal to the size of the phase wires.
- 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. In addition, cable drum no. / Batch no. to be embossed/printed at every one meter.
- Cable Jacket should also be electron beam cross-linked XLPO, flame retardant, UV resistant and black in colour.
- All cables and connectors for use for installation of solar field must be of solar grade which can withstand harsh environment conditions including High temperatures, UV radiation, rain, humidity, dirt, salt, burial and attack by moss and microbes for 25 years and voltages as per latest IEC standards. DC cables used from solar modules to array junction box shall be solar grade copper (Cu) with XLPO insulation and rated for 1.1kV as per relevant standards only.
- The ratings given are approximate. Eol holder to indicate size and length as per system design requirement. All the cables required for the plant shall be provided by the Eol holder. Any change in cabling sizes if desired by the Eol holder shall be approved after

citing appropriate reasons. All cable schedules/ layout drawings shall be approved prior to installation.

- 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 /LPE insulated cables for working Voltage up to and including 1100V, UV resistant for outdoor installation IS / IEC 69947.
- The total voltage drop on the cable segments from the solar PV modules to the solar grid inverter shall not exceed 2.0%
- The total voltage drop on the cable segments from the solar grid inverter to the building distribution board shall not exceed 2.0 %.
- CONNECTIVITY:-
- The maximum capacity for interconnection with the grid at a specific voltage level shall be as specified in the Distribution Code/Supply code of the State and amendmed from time to time . Following criteria have been suggested for selection of voltage level in the distribution system for ready reference of the solar suppliers.

Plant Capacity	Connecting voltage
Above 50kW and up to 150 KW	415V- three phase
Above 150 KW	At HT/EHT level (11kV/33kV/66kV) as per DISCOM rules.

The maximum permissible capacity for rooftop shall be 1 MW for a single net metering point.

Utilities may have voltage levels other than above, DISCOMS may be consulted before finalization of the voltage level and specification be made accordingly.

TOOLS & TACKLES AND SPARES :

After completion of installation & commissioning of the power plant, necessary tools & tackles are to be provided free of cost by the Eol holder for maintenance purpose.List of tools and tackles to be supplied by the Eol holder for approval of specifications and make from MEDA/ owner.

DANGER BOARDS AND SIGNAGES :

Danger boards should be provided as and where necessary as per IE Act. / IE rules as amended up to date. Three signage shall be provided one each at battery -cum- control room, solar array area and main entry from administrative block. Text of the signage may be finalized in consultation with MEDA / owner.

FIRE EXTINGUISHERS :

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

1. Portable fire extinguishers in the control room for fire caused by electrical short circuits
2. Sand buckets in the control room
3. 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.

Equipments

Approved ISI and reputed makes for equipment be used.

1. The contractor shall furnish the following drawings Award/Intent and obtain approval

2. General arrangement and dimensioned layout

3. Schematic drawing showing the requirement of SV panel, power conditioning Unit(s) / inverter, junction Boxes, AC and DC Distribution Boards, meters etc.

4. Structural drawing along with foundation details for the structure.

5. Itemized bill of material for complete SV plant covering all the components and associated accessories.

6. Layout of solar power Array

7. Shadow analysis of the roof

SAFETY MEASURES:

The contractor shall take entire responsibility for electrical safty 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.

DISPLAY BOARD:

The contractor has to display a board at the project site (above 50 kWp) mentioning the following:

Plant Name, Capacity, Location, Type of Renewable Energy plant (Like solar wind etc.) Date of commissioning details of tie-up with transmission and distribution companies, Power generation and Export FY wise.

L) Testing and commissioning

Pre-commissioning tests of all electrical equipment. Specific points to be considered during commissioning are:

1. Continuity checking and insulation resistance measurement of cables.
2. Proper crimping, lugging and glanding of cables before final terminations.
3. Checking of all electrical terminations for any loose contacts.
4. Proper earthing of electric equipment & solar array to be ensured.
5. At junction box in solar array, voltage levels to be checked (between positive & negative terminal, positive to earth and negative to earth) in consultation with inverter OEM.

M) Annual Generation Guarantee

Tenderer shall give minimum annual power generation guarantee for 6,57,000 Kwh for first year (Calculated on the basis of average 04 KWH per kWp installed for 365 days) and for subsequent years as per following –

2nd Year : 98% of 1st Year Generation
3rd Year : 97% of 1st Year Generation
4th Year : 96% of 1st Year Generation
5th Year : 95% of 1st Year Generation

In case of short fall, tenderer will compensate for the less power generated as per prevailing rate of State electricity board for first five years. The power generation trend after first 5 years must be mentioned.

N) LT Panel & AC Distribution Box – Interconnection

The Inverter / Power conditioning unit converts DC energy produced by solar array to 3 phase AC power. The AC power output of the inverter shall be fed to the AC Distribution Box (metering panel & isolation panel) which also houses energy meter. The 415 V AC output from the AC distribution box is fed to the owner's LT panel for feeding the building load. The AC power from the Solar Inverter shall be synchronized with the station's supply grid and power is fed into the building load on continuous basis. The connectivity / interfacing of the AC power output from the Solar Inverter to the existing grid power shall be designed and carried out by the contractor. First preference for drawing power shall be from Solar Inverter, the balance power shall be automatically drawn from the grid supply. Contractor shall finalize the scheme of interconnection to LT Panel / load after discussion with University.

ACCEPTANCE CRITERIA

Final acceptance of the integrated system will be given only after validating the performance of the system as in Installation, Testing and Commissioning of clause above.

GUARANTY

All the components of the system shall be guaranteed for any manufacturing defect or inferior components for a period of five years from the date of commissioning.

TRAINING

The supplier shall provide training to operators on the O & M aspects of the system

3.4 Scope of Comprehensive AMC

The details of scope of the comprehensive annual maintenance contract are outlined below:

A) Maintenance During Defect Liability Period or Warranty Period

a. The tenderer shall maintain the plant and associated equipment's at free of cost and ensure that it works as per tender parameters.
b. All spares required for normal operation as per tendered parameters shall be replaced at no extra cost.

B) Comprehensive Annual Maintenance Contract (CAMC)

a. The tenderer shall maintain the plant and associated equipments for 10 years from the date of commissioning of the project and ensure that it works as per the tendered parameters.
b. No separate charges will be given for annual maintenance. The cost of CAM should be included in the total cost.
c. All the activities under this clause shall be completed within the stipulated time schedule.
d. Departure from Specification: Schedule of departure from the specification if any, shall be furnished by the tenderer in technical and commercial bid along with implication on the system and cost.

C) Scope of Comprehensive Annual Maintenance Contract for SPP (CAMC)

The tenderer shall offer the following at no extra cost to the University. The rate quoted for CAMC should include the following.

a. The tenderer shall maintain the plant and ensure that it works as per the tendered parameters.
b. All the repairs and replacements of spares shall be carried out which are necessitated due to usage of system as per tender stipulations. However, the repairs and replacements necessitated by loss or damage due to misuse or accident, fire or natural calamities shall be out of the scope of CAMC.
c. Monthly visits shall be made every year for preventive maintenance of the system. If any breakdown calls for emergency service, the same shall be attended within 24 hrs. One of the scheduled preventive maintenance shall also be completed during such visits. Visits also shall be made for the upkeep of the system to ensure at no point of time the plant capacity is less than 90%.
d. During the Preventive Maintenance, the contract includes servicing including PV panel cleaning, repairing, maintenance and replacement of spare parts of Solar Power System for the satisfactory running of the system. During each visit the supplier shall carry out Thermography checks during the AMC period to identify hot spot of PV modules and take corrective action. The same shall be recorded in a log book which shall be verified and confirmed by University's representative.
e. During the break down calls, the nature of repair carried out, parts replaced etc shall be recorded in the log book.

D) OPERATION AND MAINTENANCE GUIDELINES OF GRID CONNECTED PV PLANTS

For the optimal operation of a PV plant, maintenance must be carried out on a regular basis.

All the components should be kept clean. It should be ensured that all the components are fastened well at their due place.

Maintenance guidelines for various components viz. solar panels, inverter, wiring etc. are discussed below:

1. SOLAR PANELS

   Although the cleaning frequency for the panels will vary from site to site depending on soiling, it is recommended that

   - The panels are cleaned at least once every fifteen days.
   - Any bird droppings or spots should be cleaned immediately.
   - Use water and a soft sponge or cloth for cleaning.
   - Do not use detergent or any abrasive material for panel cleaning.
   - Iso- propyl alcohol may be used to remove oil or grease stains.
   - Do not spray water on the panel if the panel glass is cracked or the back side is perforated.
   - Wipe water from module as soon as possible.
   - Use proper safety belts while cleaning modules at inclined roofs etc.
   - The modules should not be cleaned when they are excessively hot. Early morning is particularly good time for module cleaning.
   - Check if there are any shade problems due to vegetation or new building. If there are, make arrangements for removing the vegetation or moving the panels to a shade-free place.
   - Ensure that the module terminal connections are not exposed while cleaning; this poses a risk of electric shock.
   - Never use panels for any unintended use, e. g. drying clothes, chips etc.
   - Ensure that monkeys or other animals do not damage the panels.

2. CABLES AND CONNECTION BOXES
   - Check the connections for corrosion and tightness.
   - Check the connection box to make sure that the wires are tight, and the water seals are not damaged.
   - There should be no vermin inside the box.
   - Check the cable insulating sheath for cracks, breaks or burns. If the insulation is damaged, replace the wire.
   - If the wire is outside the building, use wire with weather-resistant insulation.
   - Make sure that the wire is clamped properly and that it should not rub against any sharp edges or corners.
   - If some wire needs to be changed, make sure it is of proper rating and type.

3. INVERTER
   - The inverter should be installed in a clean, dry, and ventilated area which is separated from, and not directly above, the battery bank.
   - Remove any excess dust in heat sinks and ventilations. This should only be done with a dry cloth or brush.
   - Check that vermin have not infested the inverter. Typical signs of this include spider webs on ventilation grills or wasps' nests in heat sinks.
   - Check functionality, e.g. automatic disconnection upon loss of grid power supply, at least once a month.
   - Verify the state of DC/AC surge arrestors, cable connections, and circuit breakers.

4. SHUTTING DOWN THE SYSTEM
   - Disconnect system from all power sources in accordance with instructions for all other components used in the system.
   - Completely cover system modules with an opaque material to prevent electricity from being generated while disconnecting conductors.
   - To the extent possible, system shutdown will not be done during day time or peak generation.

4.5 Unpriced Format of FINANCIAL BIDPrice Bid

(No prices should be quoted in the unpriced format of PRICE BID)

TERMS OF PRICE BID

a. Prices quoted must be firm for the period /extended period of contract. No escalation shall be admissible in respect of any item of the contract, except in case of statutory variation in items like excise duty, works contract tax (if applicable), which shall be reimbursed subject to submission of necessary documents.
b. No escalation due to IEEMA clause shall be admissible.
c. Price quoted must be inclusive of all items required for the entire job of design, manufacture, supply to site, erection, testing, commissioning, and handing over including ancillary items like minor civil works, all electrical items etc., and nothing extra shall be paid.
d. All materials shall be insured against theft, damage, etc., from the time they are transported from the factory upto the time of handing over to the University. No claim in respect of any damage/ loss shall be entertained.
e. Watch and ward responsibility at site shall be the responsibility of the contractor.

Therefore, the tenderers / contractors shall furnish the AMC charges in the FINANCIAL BIDfor 10 years and state that these charges are included in the FINANCIAL BIDand the AMC shall be Comprehensive AMC (CAMC).

The price quoted is subject to arithmetic errors i.e in case there is error, the individual sum total shall be considered.

THE CONTRACTOR HAS TO EXECUTE AGREEMENT WITH IN 14 DAYS FROM THE DATE OF ORDER (AS PER THE FORMAT GIVEN BY THE UNIVERSITY), CONFIRMING THAT THE SOLAR POWER PLANT WILL BE MAINTAINED AT THE TENDERED RATE FOR FOUR YEARS AFTER WARRANTY PERIOD.

4.6 Payment Terms, Advance Payment & its Recovery

A) Payment Terms:

Payment terms	No mobilization advance amount will be paid to the firms. Payments to the contractor will be regulated as below subject to deduction of retention money. a) 70 % after commissioning and handing over of the solar power plant after successful testing & commissioning at site. b) 30 % after three months of successful working of the project
Retention money	5 % of bill amount will be deducted from each bill. This can be refunded 1% during 5 years warranty (every year 1%). No interest shall be paid on retention money.

All bills shall be prepared by the contractor in the form agreed or furnished by the Purchaser.

B) All such interim payments accepted by the Contractor shall be regarded as payments by way of advances against final payment only. These shall not preclude bad, unsound and imperfect or unskilled work to be rejected, removed, taken away and reconstructed or re-erected.
C) All such payments other than initial advance payment, if any, are subject to specific deductions as detailed in the tender elsewhere.
D) Any certificate given by the University Engineer relating to the work done or materials delivered forming part of such payment, may be modified or corrected by any subsequent such certificate(s) or by the final certificate and shall not by itself be conclusive evidence that any work or materials to which it relates is/are in accordance with the contract and specifications.
E) Any such interim payment, or any part thereof shall not in any respect conclude, determine or affect in any way powers of the University Engineer/purchases under the contract or any of such payments be treated as final settlement and adjustment of accounts or in any way vary or affect the contract.
F) Pending consideration of extension of date of completion interim payments shall continue to be made as herein provided.
    a. All the payments, interim or otherwise other than the initial advance, are subject to statutory deductions of Income Tax & its Surcharge, Sales tax deductions as notified by respective Local State Government/Authority and any such instructions conveyed from time to time. From the interim bills, the retention money as detailed elsewhere in this tender shall also be deducted.
    b. The final bill shall be submitted by the contractor within 1 (one) month from the date of completion of work or from the date of certification of virtual completion certified by the branch-in-charge.
G) Final Payment
    a. The Tenderer shall submit the final bill in the same manner as specified in interim bills within one month of physical completion of the work or within 15 days of the date of the final certificate of completion furnished by the University Engineer whichever is earlier. No further claims shall be made by the tenderer after submission of the final bill or on acceptance of the final payment and these shall be deemed to have been waived and extinguished.
    b. In the event of any dispute, payments of those items of the bill in respect of which there is no dispute and of items in dispute, for quantities and rates as approved by University Engineer, shall be made by the Purchases within the period specified herein under, the period being reckoned from the date of receipt of the bill by the University Engineer.
    c. Before release of final bill, the contractor shall submit certificate of no dues to the Punyashlok Ahilyadevi Holkar Solapur University.

4.7 Evaluation Procedure

All the competitive tenders will be received on the specified date and time. On the same day or on specified date & time in event of any compelling circumstances, the tender will opened in the presence of the available tenderer.

A) Both the envelope superscribed as "Techno-Commercial Bid" and ".FINANCIAL BID" will be simultaneously accepted, but the envelope superscripted as "Techno-Commercial Bid" alone will be opened and details of EMD etc., shall be recorded, while the FINANCIAL BIDshall be maintained in the safe custody of the Purchases.
B) Incomplete offers and offers not accompanied by the mandatory documents and EMD shall be rejected.
C) After the technical evaluation, such of those tenderer found technically acceptable will be short listed and their envelope containing "PRICE BID" shall be opened on a given date and time in

presence of the short listed tenderers with prior notice to them. The tenderers are expected to attend the tender opening and their inability in participating will not in any way prevent the purchaser undertaking the opening of the bids.

D) During the course of technical evaluation if found necessary the Purchaser may seek supplementary PRICE BIDs to bring the evaluation at par and any such PRICE BIDs shall be prepared as stated in the tender and submitted in sealed envelopes superscribing "Supplementary FINANCIAL BIDfor the project of .....". Such supplementary FINANCIAL BIDshall be opened simultaneously with the original FINANCIAL BIDon the prescribed date and taken into consideration in its evaluation.

E) Voluntary submission of the supplementary price bid by the contractor / tenderer shall not be accepted and supplementary bids shall be limited to the details sought for by the Purchases only. Any other un-related price variations furnished in supplementary PRICE BIDs shall not be recognized and might be liable for rejections if undue information are furnished.

F) In case of other un-successful tenderers, the sealed FINANCIAL BID along with EMD shall be returned treating it individually. The purchaser reserves the right to accept or reject any of the offer's without assigning any reason and no dispute or negotiation will be entertained in this regard. The Purchaser's decision will be final in the matter.

4.8 Other Specific Conditions

A) ACCEPTANCE CRITERIA: Final acceptance of the integrated system will be given only after validating the performance of the system as in Installation, Testing and Commissioning of clause above.

B) GUARANTY: All the components of the system shall be guaranteed for any manufacturing defect or inferior components for a period of FIVE years from the date of commissioning.

C) TRAINING: The supplier shall provide training to at least 3 departmental operators on the O & M aspects of the system

D) The time allowed for carrying out of the work will be not exceeding the period specified in the NIT.

E) The acceptance of a tender will rest with the Purchaser which does not bind itself to accept the lowest tender, and reserves to itself the authority to reject any or all of the tenders received without assigning any reason. All tenders in which any of the prescribed conditions are not fulfilled or are incomplete in any respect are liable to be rejected.

F) THE PURCHASER RESERVES THE RIGHT TO ACCEPT THE TENDER IN FULL OR IN PART AND THE TENDERER SHALL HAVE NO CLAIM FOR REVISION OF RATES/OTHER CONDITIONS IF HIS TENDER IS ACCEPTED IN PART.

G) Canvassing in connection with tenders is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable for rejection.

H) The contractor shall give a list of his relatives, if any, working with the Purchaser along with their designations and addresses.

I) No employee of the purchaser is allowed to work as a contractor for a period of 2 years of his/her retirement from the Purchaser services, without the previous permission of the Purchaser. This contract is liable to be cancelled if either the contractor or any of his employees is found at any time to be such a person who had not obtained the permission of the purchaser as aforesaid before submission of the tender or engagement in the contractor's service.

J) The tender for the works shall remain open for acceptance for a period of 90 days from the date of opening of tenders. If any tenderer withdraws his tender before the said period or

makes any modifications in the terms and conditions of the tender which are not acceptable to the Purchaser, then the Purchaser shall, without prejudice to any other right or remedy, be at liberty to forfeit full value of the earnest money as aforesaid.

K) The tender for the work shall not be witnessed by a contractor or contractors who himself / themselves has / have tendered or who may and had/have tendered for the same work. Failure to observe this condition would render tenders of the contractors tendering as well as witnessing the tender liable to summary rejection.

L) It will be obligatory on the part of the tenderer to tender and sign the tendered documents for all the component parts and that, after the work is awarded, he / they will have to enter into an agreement for each component with the competent authority of the Purchaser.

M) Further the tenderer shall agree that until a formal agreement on stamp paper of Rs. 200/- is prepared and signed, this tender shall constitute a binding contract between the tenderer and the Purchaser.

N) The tenderer, apart from being a competent contractor must associate himself with agencies of appropriate class who are eligible to tender for other related works connected directly or indirectly with the contract and employed by the Purchaser.

O) The Purchaser does not bind itself to accept the lowest or any tender and reserves to itself the right of accepting the whole or any part of the tender and the tenderer shall be bound to perform the same at the rate quoted.

P) Tenderer are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders as to the nature of the site and dimensions, the means of access to the site, and obtain all necessary informations as to risks, contingencies and other circumstances which may influence or affect their tender.

Q) A tenderer shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charges consequent on any misunderstanding or otherwise shall be allowed. Submission of a tender by a tenderer implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and local conditions and other factors bearing on the execution of the work.

R) On acceptance of the tender, the name of the accredited representative(s) of the contractor who would be responsible for taking instructions from the Pruchaser shall be communicated to the Purchaser.

S) The notice inviting tender, general rules & instructions for the guidance of tenderers shall form a part of the contract document. The successful tenderer/contractor, on acceptance of his tender by the Accepting Authority, shall, within 14 days from the stipulated date of start of the work sign on a stamp paper the contract consisting of :-

   a. Standard form of Agreement on stamp paper.
   b. Notice inviting tender, all the documents including tender, forming the tender as issued at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto. General Conditions, Schedules leading to Technical Specification, Special Conditions, Technical Brochures in schedules submitted by the tenderer etc.,
   c. FINANCIAL BID/ Schedule Bill of Quantities.

5.0 General Terms and Conditions

Except where provided for in the description of the individual items in the schedule of quantities and in the specifications and conditions laid down hereinafter and in the Drawings, the work shall be

carried out as per standard specifications and under the direction of the Purchaser. Scope of works to be carried out are as follows:

A) The work consists of the contractor's own design based on technical specifications furnished. The contractor / supplier shall be responsible for its functioning according to the design criteria and its parameters. Notwithstanding the details furnished, any discrepancies shall be brought out in the technical bid highlighting the shortcomings and suggest modifications.
B) The work to be carried out under the contract shall, except as otherwise provided in these conditions, include all labour, materials, tools, plants, equipment and transport which may be required in preparation of and for and in the full and entire execution and completion of the works.
C) The descriptions given in the Schedule of Quantities shall, unless otherwise stated, be held to include wastage on material, carriage and cartage, carrying and return of empties, hoisting, setting, fitting and fixing in position and all other labour necessary and for the full and entire execution and completion as aforesaid in accordance with good engineering practice and recognized principles.
D) The several documents forming the Contract are to be taken as mutually explanatory of one another, detailed drawing being followed in preference to small scale drawing and figured dimensions in preference to scale and special conditions in preference to General Conditions.In the case of discrepancy between the schedule of quantities, the specifications and/or the Drawings, the following order of preference be observed:-
    a. Description in Schedule of Quantities
    b. Particular Specifications and Special condition, if any
    c. Drawings prepared for the design
    d. BIS Specifications
E) If there are varying or conflicting provisions made in any one or more document(s) forming part of the contract, the Accepting Authority shall be the deciding authority with regard to the intention of the document and his decision shall be final and binding on contractor.
F) Any error in description or quantity or rate in Schedule of Quantities or any omission there from shall not vitiate the Contract or release the contractor from the execution of the whole or any part of the works comprised therein according to drawings and specifications or from any of his obligations under the Contract.
G) The contractor shall forthwith comply with and duly execute any work comprised in such Purchaser's instruction, provided always that verbal instructions, directions and explanations given to the contractor's or his representative upon the works by the Purchaser shall if involving a variation be confirmed in writing to the contractor/s within 7 days.
H) No work for which rates are not specifically mentioned in the priced schedule of quantities, shall be taken up without written permission of the Purchaser. Rates of items not mentioned in the priced schedule of quantities shall be fixed by the Purchaser as provided in clause "Variation".
I) Regarding all factory made products, they shall be manufactured as per their respective IS code updated and all test undertaken at factory.
J) The work shall be carried out at MULTIPURPOSE HALL UNDER KHELO INDIA SCHEME of Punyashlok Ahilyadevi Holkar Solapur University. The Intending tenderer shall visit the site and make himself thoroughly acquainted with the local site conditions, nature and requirements of works, facilities of transport condition, effective labour and materials, access and storage for materials and removal of rubbish. The tenderer shall provide in his tender cost of carriage, freight and other charges as also for any special difficulties and including police restriction for transport etc. for proper execution of work as indicated. The successful tenderer will not be entitled to any claim of compensation for difficulties faced or losses incurred on account of any site condition which existed before the commencement of the work or which in the opinion of the Purchaser might be deemed to have reasonably been inferred to be so existing before commencement of work. Work shall be carried out through qualified engineer/supervisor with appropriate license as per statutory rules.

5.1 Definitions and Interpretations

In the contract, the following expressions shall, unless the context otherwise requires, have the meanings, hereby respectively assigned to them:

A) The `Contract or Bid' means the documents forming the tender and acceptance thereof and the agreement duly executed between the Purchaser and the Tenderer, together with the documents referred to therein including those conditions, the specifications, schedule of quantities, tender agreement, designs, drawings and instructions issued from time to time by the University Engineer. All these documents taken together, shall be deemed to form one contract and shall be complementary to one another.

B) The ' Firm', `Tenderer' or `Supplier' or `Contractor' or 'Contractor' or 'Tenderer' shall mean the individual Kartha, or Manager of HUF, firm or Company, whether incorporated or not, undertaking the works and shall include the legal heirs/representatives of such individual or the partners composing firm and theirs legal heirs and successors, or company's authorized and constituted attorneys/agents and permitted assignees of such firm or company.

C) The `Purchaser' or 'Purchaser' means any officer of the Punyashlok Ahilyadevi Holkar Solapur University, Solapur, who is specifically authorized to enter into contracts in respect of the above works.

D) The 'Consultant' means the specialized Consultant/agency appointed by Punyashlok Ahilyadevi Holkar Solapur University for the project. The `University Engineer' means Site Engineer who shall supervise and be in-charge of the work or any other authorized representative or person specifically deputed by the Purchaser wherever they are employed from time to time by the Purchaser.

E) "Contract Value" shall mean the final accepted rates in the FINANCIAL BIDexcluding AMC charges.

F) 'Date of Contract' means the `Calendar date on which the Purchaser and Contractor have signed the Agreement on the Stamp Paper.

G) 'Accepting Authority' shall mean the Registrar, Punyashlok Ahilyadevi Holkar Solapur University, Solapur.

H) 'Approval' wherever used in the specifications or schedule of Quantities shall mean, respectively, approved by or approval of the `Accepting Authority' in writing.

I) 'Appellant Authority' shall mean the Vice-Chancellor of Punyashlok Ahilyadevi Holkar Solapur University. Who shall also be the authority to consider any extension of time or compensation as defined in clause hereunder.

J) 'Notice in writing' or `written notice' shall mean a notice in writing typed or printed characters delivered to or sent by registered post to the last known address private or business address or registered office address, and shall be deemed to have been received when in ordinary course of post it would have been delivered, and/or delivered personally, or otherwise proved to have been received.

K) 'Virtual completion' shall mean that the work/installation is complete in all respects in the opinion of the Purchaser and for which the completion/clearance certificate has been issued by the University Engineer and the installation is fit for usage.

L) 'Drawings' shall mean all drawings and/or design drawings furnished by the tenderer / sketches duly signed by the authorized University Engineer on behalf of the Purchaser before commencement or during the progress of the work.

M) 'Letter of Acceptance' shall mean an intimation by a letter issued by the Accepting Authority of the Purchaser to tenderers that his tender has been accepted in accordance with the provisions in the said letter.

N) 'MEDA' shall mean Maharashtra Energy Development Agency i.e. the state nodal agency of MNRE in Maharashtra responsible for renewable energy projects in the state.

O) 'Warranty period' shall mean the period for which warranty has been provided by the tenderer for whole plant and/or for particular equipment.

P) 'Defect Liability period (DLP)' shall mean a period of 5 year from the certified date of virtual completion issued by the University Engineer and accepted by the Purchaser.

Q) 'Site' shall mean the Multipurpose Hall under Khelo India Scheme of Punyashlok Ahilyadevi Holkar Solapur University, where the solar power plant is to be installed and commissioned as per tender schedule of quantities allotted by the Purchaser for the firm's use.

5.2 Mandatory Legal Bindings

A) Tenders:

a. The entire set of tender paper issued to the tenderer should be submitted fully priced and also signed on the last page of respective chapter (this shall be acceptance of all the pages of the tender and its stipulations) together with initials on every page. Notwithstanding this, Initials / signature in every page will indicate the acceptance of the tender papers by the tenderer. (Also refer point no.15 of General Rules & Instruction for guidance of tenderers)

b. No modifications, writing or corrections can be made in the tender papers by the tenderer, but he may at his option offer his comments or modifications in a separate sheet of paper attached to original tender papers.

c. The tenderers should note that the tender is strictly on item rate basis and their attention is drawn to the fact that the rates for each and every item should be correct, workable and self-supporting.

d. If called upon by the University/Purchaser, detailed analysis of any or all the rates shall be submitted. The University/Purchaser shall not be bound to recognize the contractor's analysis.

e. All items of work described in the schedule of quantities and technical specifications are to be deemed and paid as complete works in all respects and details including preparatory and finishing works involved, directly, related to and reasonably detectable from the drawings, specifications and schedule of quantities and no further extra charges will be allowed in this connection. In the case of lump-sum contracts, the payment of such items of work will be made for the actual work done on the basis of lump-sum charges as will be assessed to be payable by the Purchaser.

f. The Purchaser has power to add to, omit from any work as shown in the drawings or described in the specifications or included in schedule of quantities and intimate the same in writing but no addition, omission or variation shall be made by the contractor without authorization from the Purchaser. No variation shall vitiate the contract.

g. The Tenderer shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices quoted in the Schedule of Quantities, which rates and prices shall, except as otherwise provided, cover all his obligations under the Contract and all matters and things necessary for the proper completion and maintenance of the works.

B) Signing of Contract & Agreement:

The successful tenderer/contractor, on acceptance of his tender by the Competent Authority, shall, within 14 days from the stipulated date of start of the work sign the contract consisting of :-

a. Standard form of agreement on stamp paper, the notice inviting tender, all the documents including drawings, if any, forming the tender as issued at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto.
b. Standard tender Form consisting of::
   i. Notice inviting tender, eligibility criteria, General Rules and Instructions.
   ii. General Conditions of contract and clauses of contract along with Annexures thereto, like specification, special conditions etc.
   iii. Bill of Quantity and PRICE BID.
   iv. List of Approved Brands/manufacturers appended, if any.
c. Contractor shall sign an Indemnity Bond in Punyashlok Ahilyadevi Holkar Solapur University's approved format (FORMAT ATTACHED) before starting the work, indemnifying the Punyashlok Ahilyadevi Holkar Solapur University from any damages, prosecution, other legal suits and claims arising out of any mishaps occurring at the site due to faulty work, non-fulfilling safety precautions, faulty construction and for violating any statutory rules and regulations for which the contractor shall be solely responsible. The contractor should have all the valid license and permission to carry out the work be held responsible proceeding arising out of complaint. The University shall not legel as quali legal above mandatory part of contractor.
d. The contractor shall pay for all stamps and legal expenses, incidental thereto.

C) Permits and Licenses:

a. Permits and licenses for the release of materials or its purchases which are under Government control will be arranged by the contractor. It may be clearly understood that no compensation or additional charges can be claimed by the contractor for non-availability of such materials in due time on this account or according to his own requirements.
b. The contractor may, however, be eligible to a proportionate extension of time on this account which in the opinion of the Univeristy/Purchaser is reasonable.

D) Government and Local Rules:

The contractor shall conform to the provisions of all local bye-laws and acts relating to the work and to the regulations etc. of the Government and Local Authorities and of any Company whose system and design is proposed to be connected / utilized. The cost, if any, shall be deemed to have been included in his quoted rates, taking into account all liabilities and shall indemnify the Purchaser against such liabilities and shall defend all actions arising from such claims or liabilities.

E) Taxes and Duties:

The tendered cost must include all duties royalties, cess and sales tax or any other taxes or local charges if applicable.

The tenderers must include in their tendered cost all duties royalties, cess, Work contract tax, service tax and sales tax or any other taxes or local charges like octroi etc. No extra claim on this account will in any case be entertained. However, pursuant to the Constitution (Forty Sixth Amendment) Act, 1982, if any further new tax, royalties cess or levy is imposed by Statute, and any Central Excise Duty by the Central Government on the Main Equipment and not on any type of sub-components or material involved in its manufacture or on installation materials like piping or electrical cabling, its switch gears etc., after the date of receipt of tenders, and the contractor there upon necessarily and properly pays such taxes / levies the contractor shall be reimbursed the amount so paid, provided such payments, if any, is not, in the opinion of the Purchaser (whose decision shall be final and binding on the contractor) attributable to delay in execution of work within the control of the contractor. On account of any downward revision of

such taxes / levies, the benefit shall be passed on to the Purchaser and shall be binding on the contractor even without the claim by the Purchaser.

a. The contractor shall keep necessary books of accounts and other documents for the purpose of this condition as may be necessary and shall allow inspection of the same by a duly authorized representative of the Purchaser and / or the University Engineer and further shall furnish such other information / document as the Purchaser may require from time to time.
b. The contactor shall, within a period of 30 days of the imposition of any such further tax / levies, described above, give a written notice to the Purchaser that the same is given to pursuant to this condition, together with all necessary information relating thereto. For this purpose the tenderers are requested to furnish the present tax structures separately with the Technical and commercial bid.

F) No optional items should be quoted in the tender.

G) Other Persons or Agencies Engaged by the Purchaser:

The Purchaser reserves the right to execute any part of the work included in this contract by other agency or persons and contractor shall allow reasonable facilities and use of his facilities for the execution of such work. The main contractor shall extend all co-operation in this regard.

Wherever the work is proposed in co-ordination with other agencies, the contractor shall co-operate with the schedule of works in such a manner as worked out by the University Engineer of the Purchaser.

H) Contractor to Provide Everything Necessary:

a. The contractor shall provide everything necessary for the proper execution of the work according to the intent and meaning of the design parameters, technical specifications, drawings and schedule of quantities. Based on the details furnished in the N.I.T. The contractors should undertake their own assessment and design the plant and system required. If the contractor finds any discrepancies furnished it shall immediately brought to the notice of the Purchaser.
b. The tenderer shall take full responsibility for adequacy, suitability and safety of all the design, works and methods of design / installation.
c. The Purchaser shall on no account be responsible for the expenses incurred by the contractor during the progress of work at site, towards any incidental expenditure like medical amenities to the workers at site, security arrangement etc. The Purchaser shall not be responsible for the safety of the workers at site either on account of the works executed by the contractor or on account of the works executed by any other agency involved at that time.
d. The Purchaser on no account shall be responsible for storage of materials or loss or pilferage or theft either in respect of the material stored or material already built and paid for by the Purchaser.
e. The contractor shall at all times give access to workers employed by the Purchaser.
f. All tools, equipments and other required facilities for execution of work shall be provided by the contractor.
g. Any facilities available at site shall be utilized only with prior permission of the Purchaser or the in-charge of the site / building owner and cannot be taken as granted and for such services utilizes the Purchaser is entitled to charge at his discretion.
h. No extra charges shall be paid over and above what has been quoted for any of the above or for similar such services.

i.

I) Time of Completion, Extension of Time & Progress Chart:

a. Time of Completion:
120 days from the date of purchase order issued by the Punyashlok Ahilyadevi Holkar Solapur University. The entire work is to be completed in all respects within the stipulated period. The work shall be deemed to commence from the date of issue of purchase order from the date of acceptance letter or date of handing over site, whichever is earlier. Time is the essence of the contract and shall be strictly observed by the contractor. The work shall not be considered as complete until the Purchaser have certified in writing that the work has been virtually completed and defect liability period shall commence from the date of such certificate.

b. Extension of Time:
   i. The time allowed for execution of the Works by the Contractor as specified or the extended time in accordance with these conditions shall be the essence of the Contract. If the contractor commits default in the execution of the work as aforesaid, the Purchaser shall without prejudice to any other right or remedy available in law be at liberty to forfeit the earnest money absolutely.
   ii. Request for extension of time, to be eligible for consideration, shall be made by the contractor to the accepting authority in writing within fourteen days of the happening of the event causing delay. The contractor shall also, if practicable, indicate in such a request the total period for which extension is desired, overlapping period, if any, with earlier events causing delays.
   iii. In such case the authority may give a fair and reasonable extension of time for completion of work. Such extension shall be communicated to the contractor by the Purchaser in writing, within 3 weeks of the date of receipt of such request. Non application by the contractor for extension of time shall not be a bar for giving a fair and reasonable extension by the Purchaser and this shall be binding on the contractor.
   iv. The decision of the Purchaser for an extension of time for completion hereunder (which decision shall be final and binding on the contractor) shall be promulgated on completion of the work or at the conclusion of such events based on which the extension of time was sought by the contractor, and the Purchaser shall then, in the event of an extension being granted, determine and declare the final completion date. The provision in clause with respect to payment of Liquidated Damages shall, in such case, be read and construed as if the extended date fixed by the Purchaser were substituted for and the damage shall be deducted accordingly.

c. Progress of Work :
During the period of work, the contractor shall maintain proportionate progress on the basis of a programme chart submitted by the contractor or prepared by the Engineer in charge whoever is responsible for such programme of work. Contractor shall plan for procurement of materials, equipments well in advance and reflect the same in a progress chart so that there is no delay on the part of the contractor in completion of the project. Maintenance and production of such records as and when required shall be the responsibilities of the contractor.

J) Liquidated Damages:

a. Time is the essence of the contract. Thus the tenderer shall be aware and take note that non-supply or commissioning of the equipment / system will affect the Punyashlok Ahilyadevi Holkar Solapur University committed programs and thus the loss by way delayed services / completion of related works etc, are invaluable and cannot be easily assessed. Therefore, it is part of the agreed terms that in the event of any delay in completion of the work, the Punyashlok Ahilyadevi Holkar Solapur University is liable to charge the tenderer without the necessity of providing for any details of such losses suffered by the Punyashlok Ahilyadevi Holkar Solapur University.

b. If the contractor fails to maintain the required progress in terms of the contract or to complete the work and clear the site on or before the contract or approved extended date of completion, he shall, without prejudice to any other right or remedy of the Purchaser on account of such breach, pay as agreed compensation the amount calculated at the rates stipulated below or such smaller amount as may be fixed by the Purchaser on the contract value of the work for every completed week that the progress remains incomplete.
c. For this purpose the term `Contract Value' shall be value at the contract rates of the work as ordered / accepted and the Contract value does not include the AMC cost.
d. If the Contractor fails to complete the works within the time for completion stated in the tender or within any extended time under Clause 14.ii hereof, the Contractor shall pay the Purchaser the sum at the rate of 0.5 % of the Contract Value per week of delay subject to a maximum limit of 5 % of the Contract Value as "Liquidated damages" for the period during which the said works shall so remain incomplete or the Purchaser may deduct aforesaid sum towards such damages from any monies due to the Contractor.
e. The Purchaser shall have the right to adjust, / set-off against any sum payable to the contractor under this or any other contract with the Purchaser anywhere in India/outside India.

K) Notice and Patents of Appropriate Authority and Owners:

a. The contractor shall conform to the provisions of any Acts of the Legislature relating to the work, and to the regulations and bye-laws of any authorities, and or other Companies (Indian or International), and / or Statutory Authorities, with whose system and design or technical know-how are/were proposed to have connection with this work. So also the contractor shall before making any variations from the drawings or specification that may be associated to so conform, give the Purchaser written notices specifying the variations proposed to be made and the reasons for making them and apply for instruction thereon. The Purchaser on receipt of such intimation shall give a decision within a reasonable time.
b. The contractor shall arrange to give all notices required for by the said Acts, regulations or Bye-laws to be given to any authority, and to pay to such authority or to any public officer all fees that may be properly chargeable in respect of the work and lodge the receipts with the Purchaser.
c. The contractor shall indemnify the Purchaser against all claims in respect of patent rights, royalties, damages to buildings, roads or members of public in course of execution of work and shall defend all actions arising from such claims and shall keep the Purchaser aloof and indemnified in all respects from such actions, cost and expenses.

L) Contractor's Employees:

a. The contractor shall employ technically qualified and competent supervisors for the work who shall be available (By turn) throughout the work and shall participate during site meetings and be available to take and comply with instructions of the Purchaser. In case of electrical works as per statutory Acts & Rules of Electricity Board and Electrical Inspectorate, the persons so employed shall have the requisite supervisory permit or wireman permit for appropriate nature of work undertaken.
b. No Child Labor: No labor below the age of eighteen years shall be employed on the work. In case of electrical works, the labor employed by the tenderer or their sub-contractor should be authorized person as permitted by the Chief Electrical Inspectorate office of the respective state Government. The Purchaser shall not be responsible for any deviation and the tenderers shall indemnify the Purchaser from any legal action or in any way directly or indirectly.
c. Labor Legislation: The tenderer shall comply with the provisions of the payment of Wages Act, 1936, Minimum Wages Act, 1948, Employees Liability Act, 1938, Workmen's Compensation Act, 1923, Industrial Disputes Act, 1947, Maternity Benefits Act, 1961, and the Contractors

Labor (Regulation and Abolition) Act 1970, or the modifications thereof or any other laws relating thereto and the rules made there under from time to time.

d. The tenderer shall, notwithstanding the provisions of any contract to the contrary, cause to be paid fair wage to labour indirectly engaged on the work, including any labour engaged by his sub-contractors in connection with the said work, as if the labour had been immediately employed by him.
e. The tenderer shall indemnify and keep indemnified the Purchaser against payments to be made under and for the observance of the laws aforesaid and the Contractors' Labour Regulations without prejudice to his right to claim indemnify from his sub-contractors. The laws aforesaid shall be deemed to be a part of this contract and any breach thereof shall be deemed to be a breach of this contract.
f. Compliance of Labor Regulations:
    i. The Tenderer shall at his own expense arrange for all the safety provisions for the safety of all workers and employees directly or indirectly employed on the work by the tenderer or his sub- contractors as mentioned in the Safety Code of this tender.
    ii. The Tenderer shall be fully responsible for compliance at his own expense all the labor regulations and rules to be observed by him and his sub-contractors and by the Purchaser as Principal Purchaser of workers. The Tenderer shall fully indemnify the Purchaser against any action by the state and/or Central Government for any default or alleged default by the Tenderer, Sub-contractor of any of such rules and regulations. If, due to any default of the tenderer or his sub-contractors, the Purchaser has to incur any expenditure for compliance of the rules and regulations or for any other reason connected with such default, the Purchaser shall be entitled to recover from the tenderer all such expenditure in full from any payment due to the tenderer.

M) Dismissal of Workmen:

The contractor shall on request of the Purchaser immediately dismiss or take off from the works any person employed thereon by him, who may in the opinion of the Purchaser be unsuitable or incompetent or who may misconduct himself. Such discharge shall not be the basis of any claim for compensation or damages against the Purchaser or any of their officers or employee.

N) Assignment:

The whole of the works included in the contract shall be executed by the contractor and the contractor shall not directly or indirectly transfer, assign or underlet the contract or any part, share or interest therein nor, change in constitution and no subletting shall relieve the contractor from the full and entire responsibility of the contract or from active superintendence of the work during their progress.

O) Damage to Persons and Property Insurance etc.:

a. Damages to persons : The Tenderer shall be responsible for all injury to the work or workmen to persons, animals or things and for all damages to the structural and/or decorative part of property which may arise from the operations or neglect of himself or of any sub-contractor or of any of his or a sub-contractors employees, whether such injury or damage arise from carelessness, accident or any other cause whatsoever in any way connected with the carrying out of this contract.
b. The clause shall be held to include interalia, any damages to buildings whether immediately adjacent or otherwise, and any damage to roads, streets, footpaths or ways as well as damages caused to the buildings and the works forming the subject of this contract by rain, wind or other inclemency of the weather.
c. The tenderer shall indemnify the Purchaser and hold harmless in respect of all and any expenses arising from such injury or damages to persons or property as aforesaid and also in respect of any claim made in respect of injury or damage under any acts of compensation or damage consequent upon such claim.
d. Damages to property: The Tenderer shall reinstate all damage of every sort mentioned in this clause, so as to deliver the whole of the contract works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damages to the property or third parties.
e. The tenderer shall effect the insurance necessary and indemnify the Purchaser entirely from all responsibility in this respect. The insurance must be placed with a company approved by the Purchaser and must be effected jointly in the name of the contractor and the Purchaser and the policy lodged with the latter. The scope of insurance is to include loss or damage to the work and workmen due to carelessness, accident including fire, earthquake, floods, etc., damage or loss to the contract itself till this is made over a complete state. Insurance is compulsory and must be effected from the very initial stage. The contractor shall also be responsible for anything which may be excluded from damage to any property arising out of incidents, negligence or defective carrying out of this contract.
f. THE Purchaser shall be at liberty and is hereby empowered to deduct the amount of any damages, compensations, costs, charges and expenses arising or occurring from or in respect of any such claim or damages from any sums due or to become due to the contractor.
g. If the tenderer or his working people or servants shall break, deface, injure or destroy any part of building in which they may be working, or any building, road, road curb, fence, enclosure, water pipe, cables, drains, electrical cables or telephone post or wires, trees, grass or grass land, or cultivated ground contiguous to the premises on which the work or any part is being executed, or if any damage shall happen to the work while in progress, from any cause whatever or if any defect, or other faults appear in the work within twelve months after a certificate final or otherwise or its virtual completion shall have been given by the Purchaser as aforesaid arising out of defect or improper materials or workmanship the tenderer shall upon receipt of a notice in writing on that behalf make the same good at his own expense or in default the Purchaser/University Engineer cause the same to be made good by other workmen and deduct the expense from any sums that may be then or at any time thereafter may become due to the tenderer, or from his security deposit, or the proceeds of sale thereof or of a sufficient portion thereof.

h. **TRANSIT INSURANCE**: Wherever specifically agreed to, the firm will insure at his cost the goods for all transit risks including 90 days storage risk from the date of the delivery of the goods at the final destination.
i. **INSURANCE**: In his own interest the contractor shall insure the works and keep them insured until the virtual completion of the contract against loss or damages by fire and/or earthquake, flood. The insurance must be placed with a company approved by the Purchaser, in the joint names of the Purchaser and the contractor for such amount and for any further sum if called to do so by the Purchaser and lodge receipts of premiums paid with the

Purchaser within days from the date of issue of letter of acceptance unless otherwise instructed.

j. Contractor shall strictly follow labour laws in force and obtain the necessary license for doing the work. He will be required to take care of the safety & security of the personnel employed and occupants of the flats, third parties, office equipments, building and other loose furniture's within the working area, during execution of the works. Contractor will be required to obtain Insurance policy "Erection All Risk Policy (EAR)" for the entire duration of the works till settlement of final bills as per clause 27 of this contract document. Any damage to the articles, building shall be made good by the contractor at his cost.
k. The contractor in case of rebuilding or reinstatement after fire shall be entitled to extension of time for completion as the Purchaser may deem fit.

P) Accounts Receipts & Vouchers:

The contractor shall, upon the request of the Purchaser furnish them with all the invoices, accounts, receipts and other vouchers that they may require in connection with the works under this contract. If the contractor shall use materials less than what is required under the contract, the value of the difference in the quantity of the materials that was required to use and that actually used shall be deducted from his dues. The decision of the Purchaser shall be final and binding on the contractor as to the amount of materials the contractor is required to use for any work under this contract.

Q) Substitution and Escalation:

a. Should the contractor desire to substitute any materials and workmanship, he must obtain the approval of the Purchaser in writing for any such substitution well in advance. In respect of Materials whose makes are not specified in the tender, specific approval of the Purchaser has to be obtained in writing before their usage.
b. The rate quoted shall be firm throughout the tenure of the contract (including extension of time, if any granted) and will not be subject to any fluctuation due to increase in cost of materials, labor, sales tax, octroi etc. unless specifically provided in these documents.

R) Suspension of Works:

a. Subject to other provisions contained, the Purchaser may without prejudice to his any other rights or remedy against the tenderer in respect of any delay in commencing, completing or during the progress of work or inferior workmanship, may serve notice in writing absolutely determine and cancel the contract in any of the following cases;
    i. If the contractor having been given by the Purchaser a notice in writing to rectify, reconstruct or replace any defective work or that the work is being performed in any inefficient or otherwise improper or un-workman like manner shall comply with the requirement of such notice for a period of seven days thereafter.
    ii. If the contractor being a company shall pass a resolution or the court shall make an order that the company shall be wound up or if a receiver or a manager on behalf of a creditor shall be appointed or if circumstances shall arise which entitle the court or the creditor to appoint a receiver or a manager or which entitle the court to make a winding up order.
    iii. If the contractor has without reasonable cause failed to commence the work or has suspended the progress of the work or has failed to proceed with the work with due diligence so that in the opinion of the Purchaser (which shall be final and binding) he will be unable to secure completion of the work by the date for completion and continues to do so after a notice in writing of seven days from Purchaser.
    iv. If the contractor fails to complete the work within the stipulated date or items of work with individual date of completion, if any stipulated, on or before such date (s) of completion and does not complete them within the period specified in a notice given in writing in that behalf by the University Engineer.

v. If the contractor persistently neglects to carry out his obligations under the contract and/or commits default in complying with any of the terms and conditions of the contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that behalf by the University Engineer.

b. If the contractor commits any acts mentioned in terms of tender hereof: And when the contractor has made himself liable for action under any of the cases aforesaid, the Purchaser shall have powers :
   i. To determine or rescind the contract of which termination or rescission notice in writing to the contractor under the hand of the Purchaser shall be conclusive evidence. Upon such determination or rescission, the security deposit of the contractor shall be liable to be forfeited and shall be absolutely at the disposal of Purchaser.
   ii. In any such event the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any engagements or made any advances on account or with a view to the execution of the work or the performance of the contract. And in case action is taken under any of the provisions aforesaid, the contractor shall not be entitled to recover or be paid any sum for any work thereto or actually performed under this contract unless and until the University Engineer has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified; Provided further that any of the recoveries to be made when the excess cost incurred by the Purchaser is more than the Security Deposit to be forfeited, such recoveries shall be limited to the amount by which the excess cost incurred exceeds the Security deposit so forfeited.

c. In any case in which any of the powers conferred upon the Purchaser hereof, shall have become exercisable &the same shall not be exercised, the non-exercise thereof shall not constitute a waiver of any of the conditions hereof and such powers shall notwithstanding be exercisable in the event of any future case of default by the contractor and the liability of the contractor for compensation shall remain unaffected.

S) Termination of Contract by Purchaser:

a. If the contractor:
   i. at any time makes default in proceeding with the works or any part of the work with due diligence and continues to do so after a notice in writing of 7 days from the University Engineer; or
   ii. commits default in complying with any of the terms and conditions of the Contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that behalf by the Engineer-in- Charge; or
   iii. fails to complete the works or items of work with individual dates of completion, on or before the date(s) of completion, and does not complete them within the period specified in a notice in writing is given to him in that behalf by the University Engineer; or
   iv. shall offer or give or agree to give to any person in Punyashlok Ahilyadevi Holkar Solapur University service or to any other person on his behalf any gift or consideration as an inducement or reward for favouring him in relation to the obtaining or execution of this or any other Contract for the Purchaser or;
   v. shall enter into a Contract with the Punyashlok Ahilyadevi Holkar Solapur University in connection with which commission has been paid or agreed to be paid by him or his knowledge, unless the particulars of any such commission and the terms of payment thereof have been previously disclosed in writing to the Accepting Authority/University Engineer; or
   vi. shall obtain a Contract with the Purchaser as a result of wrong tendering or other unethical methods of competitive tendering; or
   vii. being an individual, or in a firm, any partner thereof shall at any time be adjudged insolvent or have a receiving order or order for administration of his estate made against him or shall take any proceedings for liquidation or composition (other than a voluntary

liquidation for the purpose or amalgamation or reconstruction) under any Insolvency Act for the time being in force or make any conveyance or assignment of his effects or composition or arrangement for the benefit of his creditors or purport so to do, or if any application be made under any Insolvency Act for the time being in force for the sequestration of his estate or if a trust deed be executed by him for benefit of his creditors; or

viii. being a company, shall pass a resolution or the Court shall make an order for the winding up of the company or a receiver or manager on behalf of the debenture holders or others shall be appointed or circumstances shall arise which entitle the Court or debenture holders to appoint a receiver or manager; or

ix. shall suffer an execution being levied on his goods and allow it to be continued for a period of 21 days; or

x. assigns, transfers, sublets (engagement of labour on a piece-work basis or of labour with materials not to be incorporated in the work, shall not be deemed to be subletting) or otherwise parts with or attempts to assign, transfer sublet or otherwise parts with the entire works or any portion thereof without the prior written approval of the Accepting Authority;

The Accepting Authority may, without prejudice to any other right or remedy which shall have accrued or shall accrue thereafter to the Purchaser, by a notice in writing cancel the contract as a whole or only such of items in default from the tenderer.

b. The University Engineer shall on such cancellation by the accepting authority have powers to, for which the contractor shall hereby unconditionally agree :
   i. to take possession of the Site and any materials, constructional plant, implements, stores, etc., thereon; and/or
   ii. to carryout the incomplete work by any means at the risk and cost of the Tenderer.

c. On cancellation of the Contract in full or in part, the University Engineer shall determine what amount, if any, is recoverable from the contractor for completion of the works or part of the Works or in case the Works or part of the Works is not to be completed, the loss or damage suffered by the Purchaser. In determining the amount, credit shall be given to the contractor for the value of the work executed by him up to the time of cancellation, the value of contractor's materials taken over and incorporated in the work.

d. Any excess expenditure incurred or to be incurred by the Purchaser in completing the Works or part of the Work or the excess, loss or damages suffered or may be suffered by the Purchaser as aforesaid after allowing such credit shall without prejudice to any other right or remedy available to Purchaser in law be recovered from any money due to the Tenderer on any account, and if such moneys are not sufficient the Tenderer shall be called upon in writing and shall be liable to pay the same within 30 days.

e. If the Contractor shall fail to pay the required sum within the aforesaid period of 30 days, the University Engineer with the approval of the Purchaser shall have the right to sell any or all of the Contractor's unused materials, constructional plant, implements, temporary buildings, etc. and apply the proceeds of sale hereof towards the satisfaction of any sums due from the Contractor under the Contract and if thereafter there be any balance outstanding from the Contractor, it shall be recovered in accordance with the provisions of the Contract.

f. Any sums in excess of the amounts due to the Purchaser and unsold materials, constructional plant, etc., shall be returned to the Contractor, provided always that if cost or anticipated cost of completion by the Purchaser of the Works or part of the Works is less than the amount which the Contractor would have been paid had he completed the Works or part of the Works, such benefit shall not accrue to the Contractor.

T) Settlement of Disputes and Arbitration:

a. It shall be an inseparable part of the contract that in matters regarding quality of materials, workmanship, removal or rejection of improper work, interpretation of the drawings and specifications, measurements of materials and/or items of work, mode of procedure and carrying out of the work, the decision of the Vice-Chancellor / Pro-Vice Chancellor which shall be given in writing, shall be final, conclusive and binding on the tenderer.
   i. If the tenderer considers any work demanded of him to be outside the requirements of the contract, or considers any drawings record or decision given in writing by the decision by Pro- Vice Chancellor instructions given University Engineer on any matter in connection with or arising out of the contract or carrying out of work, to be unacceptable, he shall promptly within 15 days request the Purchaser in writing for written instruction or decision. Thereon, the Purchaser shall give his written instructions or decision within a period of two months from the receipt of the tenderer's letter.
   ii. Upon receipt of such written instructions or decision the tenderer shall promptly proceed without delay to comply with such instructions or decisions. If the Purchaser fails to give his instructions or decision in writing within a period of two months after being requested or if the tenderer is dissatisfied with the instructions or decision of the Purchaser, the Contractor may within 30 days appeal to the designated Appellant Authority of the Purchaser who shall afford an opportunity to the tenderer to be heard and to offer evidence in support of his appeal. If he is dissatisfied with this decision, the tenderer shall within a period of thirty days from receipt of the Appellant Authority of the decision shall indicate his intention to refer the dispute to Arbitration, failing which the said decision shall be final and conclusive and not referable to adjudication by the Arbitrator.

b. All disputes or differences in respect of which decisions have not been final, binding and conclusive as above shall be referred for adjudication by the arbitration by a Sole Arbitrator appointed as follows :

   i. Within one month of receipt of notice from any party to the contract for appointment of the Arbitrator the Appellant Authority, in charge of the work at the time of such appointment shall send to the tenderer a panel of three names of persons who shall not presently be connected with the work. The tenderer shall within fifteen days of receipt of this list select and communicate to the Appellant Authority the name of one person from the list who shall then be appointed as the sole arbitrator by the Appellant Authority.
   ii. If tenderer fails to communicate his selection of name, within the stipulated period, the Appellant Authority shall without delay select one person from the list and appoint him as Sole Arbitrator. If the Appellant Authority fails to send such a list within one month as stipulated, the tenderer shall send a similar list to the Appellant Authority within 15 days. The Appellant Authority shall then select one person from the list and appoint him as the Sole Arbitrator within 30 days of the receipt of the list. If the Appellant Authority fails to do so the tenderer shall communicate to the Appellant Authority the name of one officer from the list who shall then be the Sole Arbitrator.
   iii. If the Arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reason whatsoever another sole Arbitrator shall be appointed in the manner aforesaid. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor.
   iv. It is term of this contract that the party invoking arbitration shall give a list of disputes with amounts claimed in respect of each such dispute along with the notice for appointment of arbitrator and giving reference to the rejection by the Appellant Authority of the appeal and a copy of his notice(s) of intention to refer the dispute to arbitration

of such disputes as mentioned in Part (ii) above failing which the notice for appointment of the Arbitrator shall not be treated as notice for appointing the arbitrator.

v. It is also a term of this contract that no person other than a person appointed by Appellant Authority, in charge of the work as aforesaid should act as arbitrator and if for any reason that is not possible, the matter shall not be referred to arbitration at all.

vi. It is also a term of the contract that if the tenderer does not make any demand for appointment of arbitration in respect of any claims in writing as aforesaid within 9 days of receiving the intimation from the Purchaser that the final bill is ready for payment, the claim of the contractor shall be deemed to have been waived and absolutely barred and the Purchaser shall be discharged and released of all liabilities under the contact in respect of these claims. No party shall be entitled to bring any claim to arbitration if the arbitrator has not been appointed before the expiry of sixty days after defect liability period.

vii. The arbitration shall be conducted in accordance with the provisions of the Indian Arbitration Act, 1996, or any statutory modification or re-enactment thereof and the rules made there under and for the time being in force shall apply to the arbitration proceeding under this clause.

viii. The arbitrator may from time to time with the consent of the parties enlarge the time for making and publishing the award.

ix. It is also a term of the contract that any fees TA, DA and other charges are payable to the Arbitrator shall be paid by both the parties equally.

x. It is also a term of the contract that the Arbitrator shall be deemed to have entered on the reference on the date of first hearing. The venue of the arbitration place is Solapur. The fees, and charges of the Arbitrator shall, if required to be paid before the award is made and published, be paid half and half by each of the parties. The cost of the reference and of the award (including the fees, if any, of the Arbitrator) shall be in the discretion of the Arbitrator who may direct to and by whom and in what manner, such costs or any part thereof shall be paid and fix or settle the amount of costs to be so paid.

xi. The award of the Arbitrator shall be final and binding on both the parties the place of Arbitration shall be Solapur

U) Right to Audit/Technical Examination:

The Purchaser shall have the right to cause an audit and technical examination of the works and the final bills of the contractor including all supporting vouchers, abstract, etc., to be made even after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by the tenderer under the contract or any work claimed to have been done by him under the contract and found not to have been executed, the tenderer shall be liable to refund the amount of over-payment and it shall be lawful for the Purchaser to recover the same from him in the manner prescribed in clause 47 or in any other manner legally permissible and if it is found that the tenderer was paid less than what was due to him under the contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid by the Purchaser to the tenderer, without any interest thereon; Provided that the tenderer shall not be entitled to payment of any sum paid short where such payment has been agreed upon between the Purchaser on the one hand and the tenderer on the other under any term of the contract permitting payment for work after assessment by the University Engineer.

V) Lien:

a. Whenever any claim or claims for payment of a sum of money arises out of or under the contract against the contractor, the Purchaser shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in part from the security, if any deposited by the

tenderer and for the purpose aforesaid, the Purchaser shall be entitled to withhold the security deposit, if any, furnished as the case may be and also have a lien over the same pending finalization or adjudication of any such claim. In the event of the security being insufficient to cover the claimed amount or amounts or if no security has been taken from the contractor, the Purchaser shall be entitled to withhold and have a lien to retain to the extent of such claimed amount or amounts referred to above, from any sum or sums found payable or which may at any time thereafter become payable to the contractor under the same contract or any other contract with the Purchaser pending finalization or adjudication of any such claim.

b. Any sum of money due and payable to the contractor (including the security deposit returnable to him) under the contract may be withhold or retained by way of lien by the Purchaser or any other contracting person or persons through University Engineer against any claim of the Purchaser or such person or persons in respect of payment of a sum of money arising out of or under any other contract made by the contractor with the Purchaser or with such other person or persons.
c. It is an agreed term of the contract that the sum of money or moneys so withheld or retained under the lien referred to above by the Purchaser will be kept withheld or retained as such by the Purchaser till the claim arising out of or under the contract is determined by the arbitrator (if the contracts governed by the arbitration clause) or by the competent court, as the case may be and that the tenderer will have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to above and duly notified as such to the tenderer. For the purpose of this clause, where the tenderer is a partnership firm or a limited company, the Purchaser shall be entitled to withhold and also have a lien to retain towards such claimed amount or amounts in whole or in part from any sum found payable to any partner/limited company as the case may be, whether in his individual capacity or otherwise.

W) External Inspection & Audit:

a. All works under or in course of execution or executed in pursuance of the Contract shall at all times be open and accessible to the inspection of the Quality Control Organization of the Purchaser or any designated auditor / officials of the Purchaser and of the Chief Technical Examiner's Office under Central Vigilance Commission.
b. IF it shall appear to the University Engineer or to the Engineer in charge of Quality Control or any designated auditors / officials of the Purchaser or to the Chief Technical Examiner, that any work has been executed with unsound, imperfect, or unskillful workmanship, or with materials or articles provided by him for the execution of the work which are unsound or of a quality inferior to that contracted or otherwise not in accordance with the contract, the contractor shall, on demand made in writing within the defect liability period from the University Engineer specifying the work, materials or articles complained of notwithstanding that the same may have been passed, certified and paid for earlier, forthwith rectify, or remove and reconstruct the work so specified in whole or in part, as the case may require and provide other proper and suitable materials or articles at his own charge and cost.
c. In the event of the contractor failing to do so within a period specified by the University Engineer in his demand aforesaid, the contractor shall be liable to pay compensation at the same rate as under the clause of defects after completion for this default.
d. In such case the University Engineer may not accept the item of work at the rates applicable under the contract but may accept such items at reduced rates as the Purchaser or the competent authority may consider reasonable during the preparation of on account bills or final bill if the item is so acceptable without detriment to the safety and without substantially affecting the utility of the item and the structure or he may reject the work outright without any payment and/or get it and other connected and incidental items rectified, or removed and re-executed at the risk and cost of the contractor. Decision of the University

Engineer to be conveyed in writing in respect of the same shall be final and binding on the tenderer.

5.3 Project Execution Obligations

A) Variation/ Deviation:
The University Engineer with the specific approval of the Purchaser shall have power to make alteration in, omissions from, additions to or substitutions for the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work, and the tenderer shall be bound to carry out the works in accordance with any instructions given to him in writing signed by the University Engineer. Such alterations, omissions, additions or substitution shall form part of the contract as if originally provided therein and any altered , additional or substituted work which the tenderer may be directed to do in the manner specified above as part of the works, shall be carried out by the tenderer on the same conditions in all respects including price on which he agreed to do the main work except as hereafter provided:

a. No work which radically changes the original nature of the contract shall be ordered by the University Engineer as a deviation.
b. In the event of any deviation being ordered which in the opinion of the tenderer changes the original nature of the Contract, he shall within fifteen days of having been so ordered bring this to the notice of the Purchaser with the reasons but nevertheless carry it out and the disagreement as to the nature of work and the rate to be paid therefore shall be resolved in accordance with Clause under caption "SETTLEMENT OF DISPUTES AND ARBITRATION".
c. The tendered rates, shall hold good for any increase or decrease in the tendered quantities up to variation of 15 % and as stipulated elsewhere for legitimate completion of works as per original design or scope of work and on account of any modification or alteration suggested and where the variation is for the respective item is beyond 15 %, the rate for the respective item may be reviewed on mutually agreed terms.

B) Quantity of Work to be Executed:
The quantities shown in the schedule of quantities are intended to cover the entire works as per the drawings / scope of work, and therefore the contractor is bound to complete the works at the same quoted rates in the event of quantity exceeding the specified bill of quantity, but the Purchaser reserves the right to execute only a part or the whole or any excess thereof without assigning any reason therefore.

C) Tools, Storage of Materials, Protective Works and Site Office Requirements:
a. The contractor shall provide, fix up and maintain his establishment in an approved position at site and clear away on completion of the works and make good all works disturbed. The contractor shall not fix or place any placards or advertisement of any description or permit the same to be fixed or placed in or upon any hoarding, gantry, building structure other than those approved by the Purchaser. No fixtures or materials to be placed in such a manner that can be considered dangerous to the installation and to the persons working or passing by or visiting the site.
b. **Storage of materials** :The contractors shall make use of existing facilities with due permission of the Purchaser for storage of materials at site, but watch & ward arrangements for the safety of materials shall be the responsibility of the contractor. Additional covered space required if any, shall be arranged at the tenderer's own cost in the open space identified/ear marked by the Punyashlok Ahilyadevi Holkar Solapur University.

D) **Clearing Site and Setting Out Works**:

a. The site of work shown shall be cleared of all obstructions, waste materials, and rubbish of all kinds. All material damages on the place of work on the walls, ceiling or flooring or any other connected equipments, materials or installations shall be re-done to maintain the originality and leveled at the contractors own cost.
b. The contractors shall set out the works and shall be responsible for the true and perfect setting out the works and for the correctness of the positions, levels, dimensions and alignment of all parts thereof. If at any time, any error shall appear during the progress of any part of the work, the contractor shall at his own expenses rectify such error, if called upon to the satisfaction of the Purchaser.

E) **Fixing, Fastening of Equipments**:

a. The contractor is to fix the equipments on the floor by means of appropriate method so that such equipments fixed on to the floor shall not fall by its own or by natural movements of wind, air normal human operations and shall adopt the best engineering traditions and use appropriate tools in such operations.
b. The contractor while fixing any material or equipment to be suspended from the ceiling, shall use fasteners of suitable strength to hold the weight of the suspended system/equipment or material and such fasteners shall be fixed by means of power drills. The contractor shall not chip the ceiling unless ordered & approved by the Engineer- in-charge.
c. The contractor shall not puncture the existing civil structures like beams, columns and shall not undertake any type of activity which could affect the structural stability. He shall be responsible for any damages and costs in its rectification.

F) Contractor Immediately to Remove All Offensive Matters:

All waste materials and other matters of any offensive nature shall be taken out once the works are completed. The contractor shall keep the works free from dangerous materials like industrial gases, welding machines and any such devices or material of toxic and poisonous nature shall not carry within the site or building any material which are explosive in nature. Any such offensive materials which are essentially required in course of work shall be undertaken with due written permission of the Purchaser provided such materials are permissible under Law.

G) Access:

Any authorized representatives of the Purchaser shall at all reasonable times have free access to the works and / or to the workshops, factories or other places where materials or equipments are being prepared or constructed for the work and also to any place where the materials are lying or from where they are being obtained, and the contractor shall extend necessary facility to the Purchaser or their representatives for inspection examination and testing of the quality & workmanship of the materials.

H) **Materials, Workmanship, Samples, Testing of Materials**:

a. All the works specified and provided for in the specifications or which may be required to be done in order to perform and complete any part thereof shall be executed in the best and most workmanlike manner with materials of the best and approved quality of the respective kinds in accordance with the particulars contained in and implied by the specifications and as represented by the drawings or according to such other additional particulars, and instructions as may from time to time be given by the Purchaser during the execution of the work, and to his entire satisfaction. The works shall be executed with best workmanlike manner confirming BIS Specifications, Indian Electricity Act & Rules, Statutory norms prescribed by local bodies like BBMP, BESCOM, CEIG etc.
b. If required by the Purchaser, the contractor shall have to carry out tests on materials and workmanship in approved material testing laboratories or as prescribed by the Purchaser at his own cost to prove that the materials etc. under test conform to relevant I.S.

Standards or as specified in the specifications. The necessary charges for sample material, transporting, testing etc. shall have to be borne by the contractor.

c. All material must be the best of their kind available and the contractors must be entirely responsible for the proper and efficient carrying out of the work. Samples of all the materials to be used must be submitted to the Purchaser when so directed by the Purchaser.
d. Should the work be suspended by any reason, the contractor shall take all precautions necessary for the protection of work and at his own expenses shall make good any damages arising from any of these causes.

REMOVAL OF IMPROPER WORK:

e. The Purchaser shall during the progress of the work have power to order in writing from time to time the removal from the work within such reasonable time or times as may be specified in the order of any materials which in the opinion of the Purchaser are not in accordance with specification or instructions, the substitution or proper re-execution of any work executed with materials or workmanships not in accordance with drawings and specifications or instructions.
f. In case the contractor refuses to comply with the order the Purchaser shall have the power to employ and pay other agencies to carry out the work and all expenses consequent thereon or incidental thereto as certified by the Purchaser shall be borne by the contractor or may be deducted from any money due to or that may become due to the contractor.

I) Measurement:

a. Before taking any measurement of any work the contractor shall give reasonable notice to the representatives of the Purchaser or the site engineer if any, and measurements particularly concealable in nature shall be jointly taken and recorded and such statement of measurement shall be enclosed along with the bill or running bills. In the event of such measurement taken directly by thecontractor the details shall be recorded and routes be marked for inspection of the University Engineer.
b. Any deviation or discrepancies observed by the University Engineer shall be brought to the notice of the contractor or their representatives and during such inspection and measurement if the contractor fails to be present the certification of the University Engineer shall be final and binding on the contractor and the contractor shall have no right to dispute the same.

J) Preparatory Work for Utilization of the Facility After Completion:

a. The whole of the work will be thoroughly inspected by the contractor and deficiencies and defects set right. On completion of such inspection the contractor shall inform the Purchaser that they have completed the work and it is ready for inspection.
b. On completion the contractor shall clean all the area and its surroundings, equipments etc. and will leave the entire area clean and ready for immediate usage to the satisfaction of the Purchaser.

K) Clearing Site on Completion:

a. On completion of the works the contractor shall clear away and remove from the site all constructional materials, plant &equipments, tools, surplus materials, scraps, rubbish and temporary works of every kind and leave the whole of the site and the works clean and in a workmanlike condition to the satisfaction of the Purchaser.
b. In the event of failure to clear the site as required the Purchaser have the right to undertake the same engaging other agency and the same shall be at the cost of the contractor and liable for deductions in the payments due to the contractor and the contractor shall not dispute such payments.

L) Concealed Works:

The contractor shall give due notice to the Purchaser wherever any work is to be buried or concealed in the building in the earth, flooring, walls or otherwise becoming inaccessible later on,

in order that the work may be inspected and correct dimensions or measurements taken before such burial. In default whereof the same shall, in the opinion of the Purchaser be either opened up for measurement at the contractor's expenses or no payment may be made for such materials. Should any dispute or difference arise after the execution of any work as to measurements etc. or other matter which cannot be conveniently tested or checked, the notes / certification of the University Engineer shall be accepted as correct and binding on the contractor.

5.4 ANNEXURES

::ANNEXURE-A::

Special information

1. The Work has to be carried out at the Punyashlok Ahilyadevi Holkar Solapur University Solapur premises (on Multipurpose Hall under Khelo India Scheme). **Tenderers are advised to visit the site and familiarize with site conditions before quoting.**

2. Tenderers are advised to go through the specifications and the schedule of work and clarify doubts if any, with the University Engineer before quoting.

3. The contractor shall furnish full details of the materials he intends to use on the work like make, model no., printed literature/ catalogue showing all details, reference to any national/ international approvals etc. In case of any deviations from the specifications/ stipulations contained in the tender, the same shall be separately listed out by the contractor and enclosed with the tender (in technical bid). Failure to furnish the above details may result in rejection of tender summarily.

4. **Warranty:** The offer must include comprehensive on-site warranty (DLP) for a period of 5 years from the date of handing over of the Solar power plant system. The offer must also include comprehensive AMC of 10 years from the date of installation & commissioning. The firm shall be fully responsible for the warranty in respect of proper design, quality and workmanship of all equipments, accessories like covered by the offer. However the failure of the components due to other electrical faults will not be covered by the offer. The firm must warrant all equipments, accessories, spare parts etc., against any manufacturing defects during the warranty period. During the warranty period the firm shall maintain the equipment and repair/ replace all the defective components at no additional charge.

5. A copy of the BOQ (without the price)in respect of both main work with the words "quoted" written shall be enclosed in the technical bid in order to indicate that all items have been quoted for in the PRICE BID.
6. Relevant type/factory test certificates, data sheets shall be furnished in respect of Modules, Inverters, Cables and other related accessories etc.

Signature Of The Tenderer With Seal

::ANNEXURE-B::
Special Instructions

1) This specification shall be read in conjunction with General conditions of contract as applicable for this project.
2) The tenderer shall design the equipment considering the site conditions. After award of contract no claim for extra payment will be entertained.
3) All Civil alteration works shall be provided by the tenderer. The equipment shall be designed keeping in view the provisions of the statutory regulations and safety codes in force in the locality of installation. All such minor civil works like chipping, grouting, drilling, etc for fixing mounting structure and other accessories are to be executed by the supplier.
4) Within 14 days of placement of order, the Contractor should start the work.
5) The following drawings/ documents shall be submitted for records before handing over.
   a. As built drawings.
   b. A screen printed/laminated circuit and cabling diagram. The same should also be provided in the manual.
   c. Interconnection diagram of the modules of the panels on SPV module/panels shall also be provided for ready reference of the maintenance staff.
   d. Installation, Operation and Maintenance Manual. Regarding number of copies etc., refer to relevant articles.
7) The tenderer shall indicate price for supply, Installation, testing, erection and commissioning of the SPV System. The quoted price shall include charges on account of all taxes, duties, packing, forwarding, transport, insurance etc. The quoted price shall remain firm and binding and shall not be subjected to any escalation whatsoever on any account during entire period of supply, installation, testing & commissioning.
8) SPV System shall be guaranteed for a period of 1 year of trouble free operation after commencement of regular operation and shall include free servicing, repair and replacement of parts by the Contractor.
9) Workmanship and performance warranty:
   a. The materials used shall be new and best of its kind available and shall conform to standards as mentioned in the technical specification.
   b. The supplier shall guarantee satisfactory performance of system as per relevant guidelines.
   c. The guarantee shall also cover faulty design/ materials/ workmanship. All rectification or replacement under guarantee shall be done by the supplier free of cost.
   d. The conditions regarding guarantee of equipment shall also be governed by the relevant clauses of general commercial conditions.
10) The tenderer shall fill up the price data sheet and submit in a separate cover along with the tender.
11) Packing: Packing and transportation of solar panels, Charge Controller, and Mounting Structure shall be made such that the equipment is not damaged, while transporting, loading and unloading.
12) Quality and Workmanship: All the units of the system shall be manufactured in accordance with international quality management systems ISO 9001-2000(or latest ISO), for which the manufacturer shall be duly accredited. A quality plan describing the quality assurance system followed by the manufacturer would be required to be submitted. The manufacturer shall also be accredited for the compliance of ISO 14001 (latest issue) pertaining to environmental requirements. All wiring shall be neatly secured in position and adequately supported Metal panel or cover holes through which the wires or cables pass shall be bushed. All materials and workmanship shall be of professional quality to ensure the requirements.

Signature of the Tenderer With Seal

::ANNEXURE-C::
Form for Acceptance

(TO BE SUBMITTED BY THE SUCCESSFUL CONTRACTOR ON LETTERHEAD)

The above tender (as modified by us or negotiations as provided in the letters mentioned hereunder) is accepted by me for Rs ……(In words rupees ……..) The letters referred to below shall also form part of this contract agreement:

a)

b)

c)

Date:

For & on behalf of the Purchaser

Signature :_____

Designation:_____

::ANNEXURE-D::

Form of Agreement

(TO BE SUBMITTED BY THE SUCCESSFUL CONTRACTOR ON STAMP PAPER)

This agreement made the _____day of the month of _____in the year 2015 BETWEEN, Punyashlok Ahilyadevi Holkar Solapur University Solapura body corporate constituted under the Banking Companies represented by its duly constituted attorney (hereinafter referred to as the Purchaser / Bank) on the ONE PART; and

*Sri_____S/D/o_____ resident of _____the sole proprietor of M/s_____ having office at the following address _____

* M/s. _____ the partnership firm having an administrative/principal office at_____ represented by its Managing/duly authorized partner.

* M/s. _____ company/body corporate incorporated under the provisions of the Companies Act 1956 having its registered office at the following address _____, duly represented at _____ duly represented by its constituted and authorized Managing Director, Shri_____ and (hereinafter called the Tenderer which term shall also be called the Supplier or the Contractor) on the other part

WHEREAS THE Purchaser / **University** is desirous that to undertake the work of supply and installation of 150 KWp capacity roof top solar power plant at Punyashlok Ahilyadevi Holkar Solapur University campus on rooftop of MULTIPURPOSE HALL UNDER KHELO INDIA SCHEME as detailed in the notice inviting tender and their office mentioned and called for invitation to tender and the tender opened on _____ furnished by the tenderer for the supply, installation and performance of such works has been accepted by the Purchaser on the terms and conditions as set out therein and inter alia others.

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this agreement words and expression shall have the same meanings as are respectively assigned to them in the conditions of contract hereinafter referred to.

2. The following documents not inconsistent with these presents shall be deemed to form and be read and construed as part of this agreement viz;

a) Notice inviting Tender

b) General Rules and Instructions for the guidance of tenderers.

c) The Tender offer, Letter of Acceptance, Letters from & to the tenderer, if any, leading to and prior to acceptance letter.

d) General Conditions of contract along with Annexures thereto.

e) Safety Code

f) Annexure A to E consisting of Technical Specifications, Special Conditions, Questionnaire, tender drawings if any, etc.

g) Scope of Comprehensive AMC

[Note : * Strike off whichever is not applicable]

h) Schedule of quantities including Prices and tendered amount known as Price - Bid.

i) The details submitted in technical bid, design, technical brouchers, drawings and such other details etc.

3. In consideration of the payments to be made by the Purchaser to the tenderer, the tenderer hereby covenants and agrees with the Purchaser to carry out the supply and installation of 150 KWp capacity roof top solar power plant at Punyashlok Ahilyadevi Holkar Solapur University campus on MULTIPURPOSE HALL UNDER KHELO INDIA SCHEME complete and perform the works in conformity in all respects and subject to all terms and conditions/rules as mentioned in the General Conditions as also in the aforesaid documents which shall from part of this agreement.

In witness whereof the parties hereto have hereunto set their respective hands and seals the day and year first above written.

Signed, sealed and delivered by the said tenderer, _____
_____
_ to the Purchaser _____in the presence of:

Signature of Tenderer (with seal)

Signature of Authorized representative
of the Purchaser / Accepting Authority.

Witness (Signature, Name & Address):

1).

2).

::ANNEXURE-E::

Draft Format of Indemnity Bond

(TO BE SUBMITTED BY THE SUCCESSFUL CONTRACTOR ON STAMP PAPER)

THIS DEED OF INDEMNITY BOND is made on this --------- day of -------- month of year two thousand seventeen **(__.__.2024)** By M/s ---------- duly represented by one of its partners ---------- ----------, aged -- years, son of Sri ---------- , residing at ---------- ----------

* M/s. _____ the partnership firm having an administrative/principal office at_____ represented by its Managing/duly authorized partner.

* M/s. _____ company/body corporate incorporated under the provisions of the Companies Act 1956 having its registered office at the following address _____, duly represented at _____ duly represented by its constituted and authorized Managing Director, Shri_____ and (hereinafter called the Tenderer which term shall also be called the Supplier or the Contractor) on the other part

Whereas my Company was short listed for issue of tenders and my company became successful in securing the subject work through competitive tendering and the work of supply and installation of 150 KWp capacity roof top solar power plant of Multipurpose Hall Under Khelo India Scheme at Punyashlok Ahilyadevi Holkar Solapur University campus on MULTIPURPOSE HALL UNDER KHELO INDIA SCHEME, has been awarded in favour of my Firm/ company by Punyashlok Ahilyadevi Holkar Solapur University, Solapur.

And whereas for undertaking the furnishing work, my company has entered into contract agreement on __.__.2024.

Now this Deed Witnessed that in pursuance of the aforesaid contract agreement dt.__.__.2025 and in consideration of Punyashlok Ahilyadevi Holkar Solapur University Solapur having agreed to make payments on the running bills claimed by my company based on the works completed by my company in respect of supply and installation of 150 KWp capacity roof top solar power plant at Punyashlok Ahilyadevi Holkar Solapur University campus on Multipurpose Hall Under Khelo India Scheme, and referred to above, I hereby undertake to indemnify and keep harmless the Punyashlok Ahilyadevi Holkar Solapur University Solapur from any damages, prosecution, other legal suits and claims arising out of any mishaps occurring at the site due to faulty work, faulty construction and for violating rules and regulations for which I shall be solely responsible.

[Note : * Strike off whichever is not applicable]

Signature of the Tenderer With Seal

6.0 Formats for Submitting Tender

::FORMAT-6.1::

Checklist for Enclosures

(Tenderer should fill up YES or NO without fail)

	Bid Enclosures	**YES or NO**
1.	Whether the Tender is submitted in **Two covers Technical Bid and FINANCIAL BID?**	
2.	Whether Two covers along with EMD cover in Technical Bid are put into an outer cover?	
3.	**Whether Technical Bid (Envelope- A) contains the following**	
3.1	Tenderer's undertaking covering letter in the Letter Head shall be signed by the authority, stamped and submitted.	
3.2	Signed and stamped Letter of Authorization or Power of Attorney for signing the Tender document shall be submitted.	
3.3	All sections covered in the Tender document in full shall be signed by the authority, stamped and submitted	
3.3a	A copy of tender document signed on each page by the authorized signatory as a token of acceptance of all terms and conditions	
3.4	NO exemption of EMD from NSIC/Similar Government authorities.	
3.5	Filled up Technical Bid and Profile of tenderer shall be signed by the authority, stamped and submitted	
3.6	Unfilled FINANCIAL BID format shall be filled properly and signed by the authority, stamped and submitted	
3.7	All supporting documents for proving the Eligibility Criteria shall be signed by the authority and stamped in all pages	
3.8	Supporting documents to meet the Eligibility Criteria	
	a) All the supporting documents to meet the Eligibility Criteria as laid down in the Tender under Eligibility Criteria shall be signed by the authority and stamped	
	b) Tenderer's Certificate of Incorporation or Registration	
	c) Balance Sheet and Profit & Loss accounts for the past three year should be submitted.	
	g) Clientele list for the SPV power plants installed	
3.9	Following Test Certificates & Reports as per clause 15	

	i. SPV Modules	
	a) IEC 61215 / IS 14286 for Modules	
	b) IEC 61730 CEC	
	c) IEC 62804 , IEC 62782.	
	IEC 60068-2 – 68, IEC 61853	
	d) STC performance certificate	
	ii. Balance of System (for PV Power Plants)	
	a) Power Conditioners / Inverters –IEC 61683 & IEC 60083-2(1,2,14,30), IEC 62116, IEC 62109/ Equivalent standards	
	b) Cables- IS: 1554/IEC 60502 AND IS 694/IEC 60227 or Equivalent IS standard	
	c) Switches / Circuit Breakers/ Connectors – IS/IEC 60947 Part I,II,III & EN 50521	
	d) Junction Boxes / Enclosures of Inverters- IP 65 & IEC 62208	
4.	**Whether Financial E BID (Envelope-B) contains the following**	
	a) Filled FINANCIAL BID with signature and stamp in all headings shall be submitted	
	b) Whether corrections or overwriting if any is attested?	

- Checklist should be enclosed in technical bid

Signature of Tenderer (with seal)

::FORMAT-6.2::
Power of Attorney

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution)

(a) Power of Attorney to be provided by the Bidding Company in favour of its representative as evidence of authorized signatory's authority.

Know all men by these presents, We ……. (name and address of the registered office of the Bidding Company as applicable) do hereby constitute, appoint and authorize Mr./Ms. …….. (name & residential address) who is presently employed with us and holding the position of …… as our true and lawful attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to submission of our Bid for implementation of grid connected Roof top solar PV project at Punyashlok Ahilyadevi Holkar Solapur University Solapur in response to the Tender No. …… dated …….. issued by Punyashlok Ahilyadevi Holkar Solapur University Solapur including signing and submission of the Bid and all other documents related to the Bid, including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other document which the Punyashlok Ahilyadevi Holkar Solapur University Solapur may require us to submit. The aforesaid Attorney is further authorized for making representations to the Punyashlok Ahilyadevi Holkar Solapur University Solapur and providing information / responses to Punyashlok Ahilyadevi Holkar Solapur University Solapur representing us in all matters before Punyashlok Ahilyadevi Holkar Solapur University Solapur and generally dealing with Punyashlok Ahilyadevi Holkar Solapur University Solapur in all matters in connection with this Bid till the completion of the bidding process as per the terms of the above mentioned tender.

We hereby agree to ratify all acts, deeds and things done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall be binding on us and shall always be deemed to have been done by us.

All the terms used herein but not defined shall have the meaning ascribed to such terms under the tender.

Signed by the within named
…….. (Insert the name of the executant company) through the hand of Mr. …… duly authorized to issue such Power of Attorney Dated this …… day of ……

Accepted

Signature of Attorney
(Name, designation and address of the Attorney)

Attested
……
(Signature of the executant)
(Name, designation and address of the executant)

……
Signature and stamp of Notary of the place of execution

::FORMAT-6.3::

Cover Letter for Tender Offer

(The covering letter should be on the Letter Head of the Bidding Company)

I/We have read and examined the Notice Inviting Tender, prequalification criterion, proforma filled in by the successful Contractor, Schedules, Specifications Applicable, Drawings and Designs, General Rules and Instructions, General Conditions of Contract, Special conditions, Schedule (Bill) of quantities in PRICE BID, and all other documents referred to in the conditions of contract and all other contents in the tender document for the work.

I/We hereby tender for the execution of the work specified for the Purchaser within the time specified at the rates specified in the attached FINANCIAL BIDviz., schedule of quantities and in accordance in all respects with the specifications, designs drawings and instructions in writing referred to in the General Rules and Instructions, General Conditions of Contract and in all respects in accordance with, such conditions so far as applicable.

I/We agree to keep the tender open for **90 (Ninety days)** from the due date of submission thereof and not to make any modifications in its terms and conditions. A sum of Rs.1,00,000/.is hereby forwarded as earnest money in form of Demand Draft of ..... (Name of the issuing Schedule Bank) bearing no. ..... and date . .....

In the event of my / our failure to commence the work on the specified date after award I/We agree that the Punyashlok Ahilyadevi Holkar Solapur University shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely otherwise the said earnest money shall be retained by it towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein.

I/We hereby declare that I/We treat the tender documents, drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived there from to any persons other than a person to whom I/We am /are authorized to communicate the same or use the information in any manner prejudiced to the safety of the State / the Purchaser.

I/We fully understand that you are not bound to accept the lowest or any tender you may receive. Shri. _____,Partner / Proprietor / Authorized representative of the Company, is the person authorized to negotiate commercial, technical terms & conditions &sign on behalf of the firm any Agreement, Bills & receipts for this work.
I/We agree that until a formal agreement on stamp paper is prepared and signed, this tender with your written acceptance thereof shall constitute a binding contract between us.

Dated the: .....day of ……. 20..

Signature of Contractor (Authorized Signatory)
Witness, Name & address: Full Postal Address including
Pin Code NO. & Telephone NO.

Witness, Name & address:
1)

2)

::FORMAT-6.4::
Profile of the Tenderer

S NO	Particulars	Tenderer
1	Name of the Company	
2	Year of incorporation	
3	**Registered office**	
	Address	
	Office Telephone Number	
	Fax Number	
	Contact Person	
	Name	
	Personal Telephone Number	
	Mobile Number	
	Email Address	
5	**Office**	
	Address	
	Office Telephone Number	
	Fax Number	
6	**Tender signing authority**	
	Name	
	Address	
	Personal Telephone Number	
	Email Address	
	Please enclose Authorization or Power of Attorney to sign and submit the Tender	
7	Address for communications under the current tender	
8	Registration Details	
	Permanent Account Number	
	VAT Registration Number	
	CST Registration Number	
	Service Tax Registration	
9	Banker's Name, Address and Account	

EMD Amount

S.No.	Particulars	Please furnish details
1	Name of the Bank	
2	Demand Draft (DD) Number	
3	DD Date	
4	DD Amount	

Furnish details for meeting the Eligibility Criteria

1) Details About Incorporation

S NO	Description	Tenderer
1	Year of Incorporation	
2	Please enclose Certificate of Incorporation	

2) Details About Annual Turnover

S NO	Audited years	Tenderer
1	2020-21	
2	2021-22	
3	2022-23	
4	Please enclose Balance sheets and Profit & Loss sheet	

3) Details about minimum quantity installed

S No	Name , Address & contact details of the Client	Capacity/ Quantity Installed (kWp / Nos)	Date of Commissioning

Signature of the Tenderer with Seal

::FORMAT-6.5::
Technical Data Sheet

Technical Data Sheet to be compulsorily filled by contractor – 150 KWp Solar Photo Voltaic Power Plant, Grid Connected Roof Top System			
Sr.No.	**Specification**	**Requirement**	**Contractor Reply**
A.	**SPV Power Plant**		
1	Rated Output	**150 KW**	
2	No. of PV Modules	To be mentioned by Contractor	
3	No. of series module in one array	To be mentioned by Contractor	
4	No. of array in parallel combination	To be mentioned by Contractor	
B.	**SPV Module BIS APPPROVED ONLY**		
1	PV Cell type	Half Cutt - PERK Monocrystalline	
2	Make of SPV Cell	144 Cells	
3	Make of SPV Module	SATVIK, HHV, ADANI, LUMINIOUS	
4	Maximum Power Rating of one module	**540, 550 Wp or Higher**	
5	Rated Current of Module	12.71 Amps	
6	Rated Voltage of module	41.34 V	
7	Short Circuit Current of module	13.35A	
8	Open Circuit Voltage of module	49.60 V	
9	Sample I-V Curve Submitted (Yes/ No)	I/V curve graph	
10	Efficiency	>20% & Power Tolerance Maximum +5wpk A.xx - Min 1000V	
11	Dimensions	2278 X 1134 X 35 MM	
11	RFID Tag	RFID Tag Should be fixed inside the PV Module Laminate.	
12	J Box	IP 67, 3 Diodes	
C.	**Mounting Arrangement**		
1	Mounting type	Roof-mounted	
2	Surface azimuth angle of PV Module	As per the site requirement	
3	Tilt angle (slope) of PV Module	As per the site requirement	
D	**DC Combiner Box/ Array Junction Box**		
1	Enclosure	To be mentioned by Contractor	
2	Necessary Fuse Protection & Surge Protection	Yes	
3	Rated Insulated Voltage	DC 1000V	
E	**Power Conditioning Unit (PCU) / Inverter BIS APROVED ONLY**		
1	Make of PCU / Inverter	DEYE / GROWATT / SUNGROW /	

		LUMINIOUS	
2	Nominal Output power at site based on the site conditions	Total 150 KW	
3	Nominal Output array voltage shall be suitable for the MPPT range of PCU	To be mentioned by Contractor	
4	DC Array Input Operating Voltage	(-20% to +15%) of the DC Array input voltage	
5	Type of solar charge controller	MPPT Based Solar Charge Controller	
6	Switching device	IGBT based	
7	Continuous inverter Output Rating (KVA)	150 KW	
8	Output Wave Form	Pure Sine Wave Output	
9	Total Harmonic distortion	< 3% @ nominal power	
10	Output Voltage	3 ph, 415± 10 %	
11	Output Frequency	50Hz ± 3%	
12	Power Factor	> 0.9	
13	PCU Efficiency	> 90% at nominal voltage & power	
14	Inverter efficiency	94% to 98% at full load	
15	No. of Inverters with Configuration	05 nos	
16	Inverter Type	Grid Tied	
17	Idle Current	< 4% of rated capacity	
18	Regulation	±2% for DC I/p variation & o/p load variation	
19	Overload Features	150% for 1 minute	
20	Cooling	Forced Air cooling, with temperature controlled cooling fan	
21	Operating Temperature	0 to 50 °C	
22	Relative Humidity	95% Maximum	
23	LED/LCD Display : Indications	Display shall indicate system functional parameters and protection functional indicator	
24	Data monitor and display controls	RS485, Ethernet OR RS232 connectivity	
25	Protections		
	a. Input over voltage b. Low/high frequency c. Short circuit d. Under/over output voltage e. Over Temperature f. Grid Input under voltage / over voltage with auto recovery g. DC disconnect device h. DC reverse polarity i. Anti-Islanding Protection as per the standard	To be mentioned in Reply column by the contractor	

26	Enclosure Protection	IP 20(for indoor) IP 60 (for outdoor)as per IEC 529	
27	Safety	1. IEC 62103 2. IEC 62109 Part 1 & 2	
28	Audible Noise	< 45dB at 1 Meter	
29	Power Control	MPPT suitable for hybrid operation.	
F	**DC/AC Distribution**		
1	DC Side Quantity & Ratings of MCBs	To be mentioned by Contractor	
2	AC Side Quantity & Capacity of MCBs	To be mentioned by Contractor	
3	Details of measuring	To be mentioned by Contractor	
5	Other Details	To be mentioned by Contractor	
G	**Cables**		
1	Make	Polycab / Finolex / Anchor	
2	Size	To be mentioned by Contractor	
3	Other Details	To be mentioned by Contractor	
H	**Earthing**		
1	Details of points earthed	To be mentioned by Contractor	
2	Earth Resistance	To be mentioned by Contractor	
I	**Lightning Arrestor**		
1	Make & Type	Reputed make	
2	Area covered per Lightning Arrestor	To be mentioned by Contractor	
3	Number of Lightning Arrestors	To be mentioned by Contractor	
J	**Datasheet for Modules, Inverter, Cables etc..**	To be submitted along with the bid	
	All necessary Connections and parts	To be submitted along with the bid	

Signature of the Tenderer with Seal

::FORMAT-6.6::

SITE INSPECTION REPORT LETTER

(To be submitted on letterhead of bidder)

To, Date:

The Registrar,
Punyashlok Ahilyadevi Holkar Solapur University,
SOLARPUR - 413255

Sub. : Site Inspection Report for installation of Grid Connected Solar Photo Voltaic (SPV) Power Plant (150kW) under net metering at the Multipurpose Hall under khelo india scheme Solapur University, Solapur. Reference: E-tender no.

Respected Sir/Madam,

This has reference to above referred tender of 150 Kwp Solar Power Plant at Solapur University Multipurpose Hall under khelo India scheme,
I / We hereby declare that we have visited site. I / We made ourselves acquainted with site conditions, approach to site, availability of shadow free space, requirement of supporting structure (additional, if any), condition for existing structure for establishment, availability of water, requirement of tender conditions etc.

We are here with attached following documents after the inspection :

01). Single Line Diagram of 150Kwp Solar Power Plant.

02). Structural Design Map of the Solar power plant.

03). Shadow Analysis Report of Solapur University Multipurpose Hall under khelo india scheme.

I/ We verified all details required to execute the projects. I / We have no problems in

undertaking the projects and complete them in the given time period.

Thanking you

Yours faithfully,

Seal: (Signature of Bidder)

Name of bidder's representative visited the site: …….

Designation: ……..

Signature and seal by the University Engineer : _____,

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

::FORMAT-6.7::

Check List for Bank Guarantee

Sl.No.	Details of checks	Yes/No
a)	Is the BG on non-judicial Stamp paper of appropriate value, as per applicable Stamp Act of the place of execution	
b)	Whether date, purpose of purchase of stamp paper and name of the purchaser are indicated on the back of Stamp paper under the Signature of Stamp vendor? (The date of purchase of stamp paper should be not later than the date of execution of BG and the stamp paper should be purchased either in the name of the executing Bank or the party on whose behalf the BG has been issued. Also the Stamp Paper should not be older than six months from the date of execution of BG).	
c)	Has the executing Officer of BG indicated his name, designation and Power of Attorney No./Signing Power no. on the BG?	
d)	Is each page of BG duly signed / initialed by executant and whether stamp of Bank is affixed thereon? Whether the last page is signed with full particulars including two witnesses under seal of Bank as required in the prescribed Performa?	
e)	Does the Bank Guarantees compare verbatim with the Performa prescribed in the Bid Documents?	
f)	Are the factual details such as Bid Document No. / Specification No., / LOA No. (if applicable) / Amount of BG and Validity of BG correctly mentioned in the BG	
i)	Whether overwriting/cutting if any on the BG have been properly authenticated under signature & seal of executant?	
j)	Site Inspection Report (as per FORMAT : 5.6) duly signed by the University Engineer need to be enclosed along with tender document.	

::FORMAT-6.8::

PART-II PRICE BID

(To be submitted in separate sealed envelope)

TERMS OF PRICE BID

1. Prices quoted must be firm for the period /extended period of contract. No escalation shall be admissible in respect of any item of the contract, except in case of statutory variation in items like excise duty, works contract tax (if applicable), which shall be reimbursed subject to submission of necessary documents.
2. No escalation due to IEEMA clause shall be admissible.
3. Price quoted must be inclusive of all items required for the entire job of design, manufacture, supply to site, erection, testing, commissioning, and handing over including ancillary items like minor civil works, all electrical items etc., and nothing extra shall be paid.
4. Price quoted shall cover the cost of Supply, Installation, Testing, Commissioning & Maintenance for 10 years of Grid-Connected 150 KWp Rooftop Solar Photo-Voltaic Power Plant on Roof of MULTIPURPOSE HALL UNDER KHELO INDIA SCHEME of Punyashlok Ahilyadevi Holkar Solapur University. No extra payment on this amount shall be entertained/paid.
5. All materials shall be insured against theft, damage, etc., from the time they are transported from the factory up to the time of handing over to the University. No claim in respect of any damage/ loss shall be entertained.
6. Watch and ward responsibility at site shall be the responsibility of the contractor.
7. The value of FINANCIAL BID inclusive of 10 years of comprehensive maintenance will be computed for arriving lowest tenderer (L1).

The Detailed items to be executed as per Financial Bid

S No	Description of Items to be executed.	Total Quantity	UOM	Unit Rate	Cost
I)	Supply of the following for **150 KWp** Solar Power Grid connected system				
1	SPV module - (minimum 550 Wp Mono Perc -144 cells)	As per the capacity of the module	No		
2	Module mounting structure	Suitable for S.No.1	Lumpsum		
3	Array Junction Box	Suitable for S.No.1	Set		
4	Main Junction Box	Suitable for S.No.3	NO		
5	On-Grid Power Conditioning Unit (PCU)/Grid Inverter	4 x 100kW + 1 x 50kW	NO		
6	Copper Cables (1100V Grade UV protected) of the required sizes	As per site requirement	MTRS		
7	Net Meter HT side to be installed Approved by MSEDL Company.	01	NO		
8	Generator Reverse power protection device.	01	NO		
9	Cabling from Solar Inverter O/P to Main Distribution panel to be provided.	As per site requirement	MTRS		
10	Communication Interface with Data logging and Monitoring system with R S 232/485 communication Fort	01	NO		
11	AC Distribution Board	01	SET		
12	DC Distribution Board	01	SET		
13	Earthing	As required	NO		

14	Lightning and overvoltage protection	As required	SET		
	Sub Total (Item 1 to 14)				
	Taxes @ %				
15	Civil works and others If any, please specify separately	01	SET		
16	Installation, Testing, loading & unloading up to rooftop, erection, carrying out preliminary tests at site, commissioning, performance testing of 150 KWp Roof top Solar PV Power Plant and periodical general monitoring and maintenance for 10 years.	01	SET		
17	Any other Items which are not covered in above list. Item description should be mentioned.				
	Sub Total (Item 15 & 16)				
	Service Tax @ % on item 15 & 16				
	Grand total				
	Amount In words Rs.				

Annual Maintenance contact (AMC) for 5 Years (Including 3 years warranty) from the installation of project to be done by the contractor & its cost should be included while quoting the Price.

ANNEXURE – A.

Specifications for 50 KVA Online UPS with Tubular Batteries.

DESCRIPTION	**SPECIFICATION**
Rating	50 KVA ONLINE UPS **PRS MODEL** SHOULD BE COMPATIBLE WITH EXISTING UPS.
Make	Should be Like Techser / Emersion / Gamatronics / Piller.
Type	3 phase Input & 3 Phase Out put
Series	Pure Sine Wave Inverter
Technology	DSP controlled, PWM Technology using IGBT,
Load sharing System	Parallel redundant. (PRS)
Input Parameters	
Input Supply	3 Phase, 4 Wires
Voltage Range	250 - 480 AC (P-P)
Power Factor	> 0.95
Frequency Range	45-55Hz
Output Parameters	
Power Factor	0.9
Voltage Regulation	400 V± 1%(P-P),
Frequency Regulation	50Hz + 0.1 Hz
Peak Efficiency	>98%
Output Waveform	Pure Sine Wave
Total Harmonic Distortion	<3%
Crest Factor	>3:1
Transient Response	Recovery to ± 5% Within 1.5 Cycles
Overload Handling Capacity	125% For 8min, 170% For 10 Min.
Efficiency	
Inverter	95 %
Overall	93 %
Isolation	
Isolation Type	Galvanic Isolation with Hormonic suppression Filter.
Isolation Transformer	Should be built in. **External is not accepted**.
Battery Parameters*	
Battery Type	Tubular Batteries C10,
Batteries Quantity	64 Numbers

Batteries Capacity	12V, 200 AH - 64 Numbers
Battery Rack	Metal Type Battery Rack to keep Batteries.
Mode of charging	Boost cum trickle charging.
Battery Make	**EXIDE / AMAR RAJA/ SOUTHERN HI POWER.**
Battery housing	In battery stand with connecting cables.
Environmental Parameters	
Operating Temperature	0 – 50 C
Acoustic Noise (at 1mtr)	< 60 db
Relative Humidity	Max 95% non-Condensing
Chassis	Anti Static Paint Protection.
Computer Interface	RS 232 & SNMP Adapter, RS-485
Indicators (With mimic panel)	
LED Display	Mains ON, Inverter ON/OFF, O/P Low / High , Battery Low, Over Load,
LCD Display	Input Voltage, Output voltage, Output frequency, Load Current, Battery voltage.
Others	
Manual Change over switch	Built in the UPS.
Indications	Backlit LCD Screen with Indications
Audible Alarm	Mains Failure, Battery Low, Over Load.
Enclosure Protection Grade	IP 20.
Safety	EN50091 – 1 , EN50091-2 LIV. A
EMC/LVD	EN62040-2, CLASS A
Quality	ISO 9001, ISO 14001.
Preventive Maintenance	Preventive Maintenance should be carried out Monthly during Guarantee & AMC period. (Other than Complaints)