

ROOFTOP SOLAR POWER PLANT TENDER DOCUMENT



Design, supply, installation, testing and commissioning of 70/100 kW (AC) rooftop solar power plant with grid connection under net-metering policy at Union Biblical Seminary, Pune, Maharashtra

March 2017

TABLE OF CONTENTS

S.No.	Particulars	Page No.
01	Tender Notice	03
02	Detailed Tender Notice	04
03	Bidding Process	05
04	Company Brief	06
05	Project Summary and a brief description of the system	07
06	Scope of the Work	08
07	Technical Details of the 70/100 KW (AC) Solar Power Plant	09
08	Protections	12
09	Grid Islanding	13
10	Fire Extinguishers	13
11	Drawings & Manuals	13
12	Planning & Designing	14
13	Drawings to be Furnished by the Company after PO	14
14	Net Metering	14
15	Test Certificates	14
16	Confirmation to MNRE Technical Specification and Standards	14
17	Commercial Offer	15
18	Warranty	15
19	Operation & Maintenance and Annual Maintenance Contract	16
20	Declaration by the Company	16
21	Company's Undertaking Covering Letter	17
22	Articles of Agreement	19
23	Format for Financial Bid	21

01 TENDER NOTICE

The Education Endowment Trust (EET) of Union Biblical Seminary (UBS), Bibvewadi Pune invite sealed tenders in TWO envelope format (One for TECHNICAL BID, and Second for FINANCIAL BID) for **design, supply, installation, testing and commissioning of 70/100 KW (AC) rooftop solar power plant with grid connection under the net metering policy** of Govt. of Maharashtra, to be installed at Union Biblical Seminary, Bibvewadi Pune.

Interested parties are requested to collect the tender document from the office of the Director of Administration, Union Biblical Seminary, Bibvewadi, Pune-411 037 by paying Rs 1,000/- in cash or in the form of demand draft drawn in favour of the Education Endowment Trust of Union Biblical Seminary, payable at Pune, along with a written application on or before **03rd April 2017** during the office hours 10.0 am to 1.0 pm & 2.0 pm to 5.0 pm. The tender document can also be downloaded from UBS website www.ubs.ac.in and bid shall accompany demand draft of Rs 1,000/- towards tender fees.

The duly sealed tender must be submitted to UBS by **5th April 2017** before 5.0 pm in the office of the Director of Administration, UBS.

All bidders shall note that the decision of EET of UBS regarding this solar tender shall be final and binding on the successful bidder and to every other applicant bidder. No correspondence or discussion in this regard shall be entertained by UBS at any point. The bidders shall kindly note that the Education Endowment Trust of UBS reserves the right to accept any-bid or reject all the bids without assigning any reason/s thereof, at any point during the bid process.

Director of Administration
UNION BIBLICAL SEMINARY
Bibvewadi, Pune 411 037.
Tel. 24211747 / 24211203 - Ext.333.
Mob.No. 7709601239
Email: solar@ubs.ac.in

Date: 14/03/2017

02 DETAILED TENDER NOTICE

Tenders in the prescribed two envelope format have been invited by the Education Endowment Trust of Union Biblical Seminary, Bibvewadi Pune for the design, supply, installation, testing and commissioning of 70/100 KW (AC) rooftop solar power plant with grid connection under 'Net Metering Policy' of Govt. of Maharashtra, to be installed at Union Biblical Seminary, Bibvewadi, Pune.

The bidders should submit the tenders with complete documents as mentioned in the detailed tender notice to the office of the Director of Administration, UBS on or before **5.0 pm of 05th April 2017**.

Pre-bid meeting: The pre-bid meeting will be held at UBS office at 11.00 a.m. on **25th March 2017**, and shall be chaired by the Director of Administration, UBS. The queries if any may be sent by email on or before **23rd March 2017**.

Earnest Money Deposit: The bid shall be accompanied by Earnest Money Deposit (EMD) of Rs. 50,000/- in the form of demand draft drawn in favour of Education Endowment Trust of Union Biblical Seminary. No bid shall be accepted without the EMD. No interest shall be payable on EMD. The EMD will be returned to the unsuccessful tenderers free of any interest or other charges within 30 days after the final decision concerning the whole matter of the project or on issuance of the work order whichever is later. For the successful bidder, the EMD amount may be converted into part of security deposit.

Offer Validity: The bid offer submitted by the bidders must be valid for **120 days** from the date of bid submission.

Opening of the Tenders: The date and venue of the opening of the tender shall be intimated to the concerned bidder/s from the office of the Director of Administration, UBS.

Completion Time: The completion period of the project is **10 weeks** from the date of issuing the work order along with the advance.

Price Bid: The bidders have to quote both **gross price and net price** (after offering subsidy) as payable by the Education Endowment Trust (EET) of UBS. In addition, O&M price for comprehensive maintenance for five years duration with 1st year free O&M, also shall be quoted. **The net total price offered for five years along with comprehensive O&M prices shall be considered by EET for financial evaluation.** However, if the successful bidder intends processing a subsidy in his own capacity then EET will sign all such applicable documents as may be required.

Payment Terms:

- 15% of the agreed or gross total cost of project (w/o O&M costs) shall be released along with the work order against bank guarantee (BG) of equivalent amount from nationalized bank for 3 months duration by the bidder.
- 40% will be released against the supply of all materials in good and acceptable working condition at the site.
- 25% will be released upon installation of the complete system.
- 10% will be released upon successful testing, commissioning of the project and on operationalization of net meter at the project site; whichever is later.
- 10% of the agreed or gross project cost will be kept as retention amount as a performance security for five years duration from the date of commissioning/handling over of system or operationalization of net-meter; whichever is later.

- The last 10% retention amount shall be released in five equal installments of 2% each after completion of each year period. The 1st trench of 2% retention money may be claimed on the acceptance of detailed report of satisfactory performance for the 1st year duration by UBS and on the successful claim, processing and receipt of the subsidy amount in the account of Education Endowment Trust of UBS, whichever is later. For the subsequent years, the 2% retention amount shall be claimed on completion of the year on submission of performance report.
- The comprehensive O&M charges shall be paid along with service tax as may be applicable starting 2nd year onwards till completion of five years. The O&M charges shall be claimed on six monthly basis post completion of the said service period and successful O&M services.

Eligibility of the Bidder:

A) Technical Eligibility

- The bidder must be a registered organization under The Companies Act 1956 or 2013; and have office in the state of Maharashtra. Organizations having office in Pune shall be preferred.
- The bidder must be a channel partner empanelled with the Ministry of New and Renewable Energy (MNRE) or Maharashtra Energy Development Agency (MEDA) for rooftop solar power projects. The valid empanelment letter to this effect shall be accompanied with the technical offer.
- The bidder should be in the business of solar PV power as an EPC company/solar power developer/solar system integrator/ solar system distributor or franchisee or solar PV module or inverter manufacturer for at least 3 years.
- The bidders should have completed at least 500 KWp rooftop solar power projects (cumulative capacity) anywhere in India and at least one project should have been in Maharashtra for minimum of 100 KWp or two projects of 50 KWp capacity each.
- The bidder has to provide proof of successfully processing Central Financial Assistance (CFA)/Subsidy of MNRE for rooftop or any other solar system for at least one of their clients during last three years.
- The bidder has to provide a proof of successfully processing net metering application and have installed and commissioned net meter for any one of their clients in Maharashtra in recent past.

B) Financial Eligibility

- The average turnover of the company during last 3 financial years (FY2013/14, 14/15 and 15/16) shall be Rs.100 Lakh minimum. The certificate to this effect from chartered accountant (CA) shall be submitted along with technical offer.
- The latest solvency certificate from the bank certifying minimum of Rs.25 lakhs amount shall be attached with the technical offer.

03 BIDDING PROCESS

Bids are required to be submitted in a **single sealed cover envelope containing Envelope-I (Technical offer- Covering letter, Tender Fees, EMD, Company Brief, Project summary & brief description, Scope of work & Technical specifications, eligibility documents etc.) and Envelope**

II (Financial offer - Price Bid only) each one duly sealed separately and marked appropriately. Envelope should contain the documents as detailed in clauses below. *In addition to hard copy submission of TECHNICAL BID, the soft copy of TECHNICAL BID only shall be submitted online through email. The complete technical bid must be submitted to solar@ubs.ac.in on or before the due date. PL. NOTE THAT NO FINANCIAL BID TO BE SUBMITTED ONLINE THROUGH EMAIL.*

All the envelopes should be super scribed as “Bid for Implementation of 70/100 KW (AC) Rooftop Solar Power Plant under Net Metering Policy in UBS, Pune” and Envelope-I (Technical Offer- Covering & Technical Data envelope) / Envelope-II (Financial Offer- Price Bids) as applicable.

The bidders have the option of sending their bid either by registered post; or speed post; or courier; or by hand delivery, so as to reach the Union Biblical Seminary, Bibvewadi by the bid deadline. Any bid received after the said timeline and proposed date will be summarily rejected.

04 COMPANY BRIEF

The company submitting the tender should furnish details as per the following guidelines:

The bidder shall be registered SPV supplier / manufacturer / system integrators/dealer / franchisee empanelled with Maharashtra Energy Development Agency or approved channel partners of MNRE for rooftop solar.

The company brief should include the number of years the company is involved in setting up rooftop solar power plant and should include the full client list along with capacity and date of installations.

The company should furnish sufficient documents to satisfy the client in terms of having adequate capabilities for supply and installations of solar power plant and integration /manufacturing capacity to perform the works properly and expeditiously within the time frame specified in the tender document.

The company brief should also include the financial stability and status to meet the financial obligations pursuant to the scope of work as mentioned in the financial eligibility criteria.

The company should have the experience of design, supply, installation, testing, and commissioning of on grid solar power plant as mentioned in technical eligibility criteria.

The company should have adequate field service set up to provide good after commissioning / sale services including maintenance and repairs.

The company should have valid test certificates of the solar PV modules and inverters as specified and required in the technical bid of this tender document

The company fulfills all requirements as per the provisions under JNNSM (NSM), MNRE, and GOI and systems offered must comply with the existing electricity grid code requirements and regulations in place for rooftop systems in India and Maharashtra.

The company should have post installation localized service facilities/centres in Pune or Mumbai.

The list of minimum documents required to be submitted with technical offer:

- Technical offer giving all the details of the proposed system along with estimated monthly and annual energy generation at site, makes of components and warranties offered, and information on Insurances, and taxes covered.
- Detailed project implementation schedule for **10 weeks** duration for the purpose of monitoring progress of the project implementation.
- Authorized test certificates/report of all major components like solar PV module, inverter, cables etc.
- Clients list for rooftop/ground mounted solar along with capacity and year of installations along with client's certificate/s of satisfactory installation and performance.
- Company registration certificate copy
- Copies of company PAN, TAN, Service Tax, VAT etc. registrations
- Summary of last 3 years balance sheet (FY2013/14, 14/15 and 15/16)
- CA certificate for turnover
- Solvency certificate from the bank
- Proof of being in solar PV business in last 3 years
- Proof of MNRE CFA/Subsidy processed for client
- Proof of net-metering processed for client
- Details of at least 100 KWp (1 No) or 50 kWp (2 Nos) systems installed and commissioned in Maharashtra
- Duly signed copy along with seal of company on each page of tender document

UBS may ask for any other additional information if so required during the evaluation of the proposals.

05 PROJECT SUMMARY AND A BRIEF DESCRIPTION OF THE SYSTEM

The bidders should submit a project summary and a brief description of the proposed system, which should include but not limited to:

- The proposed site specifications/requirements
- Complete technical specifications of the system proposed along with block diagram/single line diagram, components and their make proposed.
- Detailed solar PV panel specifications along with valid test reports/certificates
- Detailed technical specs of inverter proposed with valid test reports/certificates
- Detailed technical specifications of online performance monitoring system
- The bill of material (BoM) and the proposed vendors/make.
- Monthly and annual energy generation estimation at proposed site along with the description of methodology used to arrive at the same.
- Profile of project execution team members
- The warranties and guaranties being offered must be mentioned for each component/s on a separate sheet.
- Project implementation schedule for 10 weeks duration

It is sole responsibility of the bidder/s to get acquainted / familiar with the site conditions before submission of bid itself. Post submission of the financial offer, no arguments regarding site conditions

and inclusion/exclusion of any scope related to that shall be entertained by UBS. No changes in the agreed costs will be permitted once the contract is awarded to the company.

The company shall submit all drawings, single line diagram (SLD) and documents related to approvals of the project after receiving the confirmation letter awarding the contract and the advance payment. Before the commencement of project work at site, the bidder shall get all drawings/designs approved from the UBS or its official consultant.

06 SCOPE OF THE WORK& SERVICES

The scope of work will include complete design, engineering, manufacture, supply, civil work, erection, testing & commissioning up to installation and operationalization of net meter of the grid connected rooftop 70/100 KW(AC) rooftop solar PV project, with the following details:

1. The bidding company shall specify in detail the scope of work in the design, supply, installation, testing and commissioning of grid connected rooftop 70/100 KW(AC) Solar PV power plant under Net Metering as per the technical specifications prescribed by MNRE and rooftop solar regulations applicable in Maharashtra.
2. The company should visit the site before submitting the tender in order to assess the proposed site.
3. The mounting structure within the scope of this tender is for flat/tilted RCC roofs above the administration building, library building and the research & resource centre.
4. The bidding company shall include in the scope of work the liaison, procurement and obtaining approvals from DISCOM for Net Metering apart from providing technical support for the submission related to statutory approvals.
5. Wiring up to distribution board and metering point from SPV Rooftop system will be in the scope of the successful bidder. The cable should be copper armored with suitable current carrying capacity.
6. The successful bidder shall do necessary coordination with concerned agencies in Maharashtra state, including but not limited to MEDA, MNRE and CEIG, as applicable, for procuring necessary approvals on behalf of the customer. The cost of approvals and bi-directional meter, CT/PT (if required) shall be borne by the successful bidder only and included in project costs. No separate costs on any ground, other than agreed price shall be considered.
7. Estimation of monthly and annual energy generation from the solar system at proposed site.
8. Technical specs and details of online remote performance monitoring system to be installed
9. The successful bidder will collect firm work order from the customer. A copy of the work order, invoice, commissioning report and bill of material has to be submitted to the concerned authorities for release of Central Financial Assistance (CFA) of MNRE/State subsidy and liaison with MNRE, New Delhi for releasing of CFA.
10. The scope of work would include performance testing of the complete system.
11. The total solar PV system and workmanship shall be warranted for five years of its defect free performance. The free O&M period shall be one year from date of handing over. From 2nd year onwards the AMC for comprehensive maintenance shall be awarded for the four years duration on annual basis.
12. If the operation or use of the system proves to be unsatisfactory during the warranty period of five years, the bidder shall replace the faulty components or carry out necessary repairs as per the warranty terms and conditions at its own costs.
13. The successful bidder shall undertake to supply spares free of cost for the maintenance of the offered items during the warranty period of five years.

14. Details of the service centre/s in Pune/Mumbai shall be provided to the customer.
15. Successfully processing applications for net metering and MNRE subsidy
16. The bidder should take appropriate insurance/s for materials and manpower at all stages of projects during supply, transport, installation and commissioning of solar systems. UBS will not assume any responsibility towards any loss of material / manpower. Bidders shall always keep UBS indemnified from all such incidences and losses to manpower/materials, if any.

07 TECHNICAL DETAILS OF 70/100 KW (AC) ON GRID SOLAR POWER PLANT

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

Solar PV system shall consist of following equipment/components.

- Solar PV modules consisting of required number of **Multi-Crystalline** PV modules qualifying for MNRE subsidy/central financial assistance (CFA). The proposed solar module efficiency shall be 16% at the minimum.
- DC-AC Invertor/s
- Grid interactive power conditioning unit with remote monitoring system and relevant software /viewing application
- Mounting structures
- Junction Boxes.
- Earthing and lightning protections.
- IR/UV protected PVC Cables, pipes and accessories, water proof support structures etc.
- Foundations and related civil work for mounting structure
- Any other item/s as may be required to successfully commission and operate such rooftop system

7.1 SOLAR PHOTOVOLTAIC MODULES:

- 7.1.1 The PV modules used should be made in India and must qualify for MNRE subsidy guidelines.
- 7.1.2. The PV modules used must qualify to the latest edition of IEC PV module qualification test or equivalent BIS standards Crystalline Silicon Solar Cell Modules IEC 61215/IS14286. In addition, the modules must conform to IEC 61730 Part-2- requirements for construction & Part 2 – requirements for testing, for safety qualification or equivalent IS.
 - a) PV modules must be tested and approved by one of the IEC authorized test centres approved by MNRE.
 - b) The module frame shall be made of corrosion resistant materials, preferably having anodized aluminum.

- c) The bidder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power in his bid. SPV panels with **minimum rating of 300 Wp with certified module efficiency of 16% or more only shall be used and accepted.**

7.1.3. **Warranties:**

a) **Material Warranty:**

The manufacturer/supplier should warrant the solar module(s) to be free from defects and/or failures specified below for a period not less than five (5) years from the date of sale to the original customer.

- i. Defects and/or failures due to manufacturing
- ii. Defects and/or failures due to quality of materials
- iii. Non conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the manufacturer will repair or replace the solar module(s) at his own costs, at the Owners sole option.

b) **Performance Warranty:**

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

7.2 **ARRAY STRUCTURE**

- a) Hot dip galvanized MS mounting structures may be used for mounting the modules/ panels/arrays. Each structure should have angle of inclination as per the site conditions to take maximum insolation. However to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.
- b) The Mounting structure shall be so designed to withstand the speed for the wind zone of the location as per IS 875 Part 3. Suitable fastening arrangement such as grouting and calming should be provided to secure the installation against the specific wind speed.
- c) The mounting structure steel shall be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance of latest IS 4759.
- d) Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. Aluminium structures also can be used which can withstand the wind speed. Necessary protection towards rusting need to be provided either by coating or anodization.
- e) The fasteners used should be made up of stainless steel. The structures shall be designed to allow easy replacement of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels
- f) Regarding civil structures the bidder need to take care of the load bearing capacity of the roof and need arrange suitable structures based on the quality of roof.
- g) The minimum clearance of the structure from the roof level should be 300 mm.

7.3 **JUNCTION BOXES (JBs)**

- a) The junction boxes are to be provided in the PV array for termination of connecting cables. The J. Boxes (JBs) shall be made of GRP/FRP/Powder Coated Aluminium /cast Aluminium alloy with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JB's shall be such that input & output termination can be made through suitable cable glands.

- b) Copper bus bars/terminal blocks housed in the junction box with suitable termination threads Conforming to IP65 standard and IEC 62208 Hinged door with EPDM rubber gasket to prevent water entry. Single / double compression cable glands. Provision of earthings. It should be placed at 5 feet height or above for ease of accessibility.
- c) Suitable markings shall be provided on the bus bar for easy identification and the cable ferrules must be fitted at the cable termination points for identification

7.4 **DC DISTRIBUTION BOARD:**

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

7.5 **AC DISTRIBUTION PANEL BOARD:**

- a) AC Distribution Panel Board (DPB) shall control the AC power from PCU/ inverter, and should have necessary surge arrestors. Interconnection from ACDB to mains at LT Bus bar while in grid tied mode.
- b) All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS60947 part I, II and III.
- c) The changeover switches, cabling work should be undertaken by the bidder as part of the project.
- d) All the Panel's shall be metal clad, totally enclosed, rigid, floor mounted, air - insulated, cubical type suitable for operation on three phase / single phase, 415 or 230 volts, 50 Hz
- e) The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.
- f) All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.
- g) Should conform to Indian Electricity Act and rules, regulations (till last amendment).
- h) All the 415 AC or 230 volts devices / equipment like bus support insulators, circuit breakers, SPDs, VTs etc., mounted inside the switchgear shall be suitable for continuous operation

7.6 **PCU/ARRAY SIZE RATIO:**

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

7.7 **PCU/ Inverter:**

As SPV array produce direct current electricity, it is necessary to convert this direct current into alternating current and adjust the voltage levels to match the grid voltage. Conversion shall be achieved using an electronic Inverter and the associated control and protection devices. All these components of the system are termed the "Power Conditioning Unit (PCU)". In addition, the PCU shall also house MPPT (Maximum Power Point Tracker), an interface between Solar PV array & the Inverter output should be compatible with the grid frequency and should have enough provisions or capable for interfacing of remote monitoring system.

7.11. **CABLES**

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

- i. Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards
- ii. Temp. Range: -10°C to $+80^{\circ}\text{C}$.
- iii. Voltage rating 415/660/1000 V
- iv. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation
- v. Flexible
- vi. Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum. The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use.
- vii. Cable Routing/ Marking: All cable/wires are to be routed in a GI cable tray and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable easily identified.
- viii. The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e. 25years.
- ix. The ratings given are approximate. Bidder to indicate size and length as per system design requirement. All the cables required for the plant provided by the bidder. Any change in cabling sizes if desired by the bidder/approved after citing appropriate reasons. All cable schedules/layout drawings approved prior to installation.
- x. Multi Strand, Annealed high conductivity copper conductor PVC type 'A' pressure extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armoured cable for underground laying. All cable trays including covers to be provided. All cables conform to latest edition of IEC/ equivalent BIS Standards as specified below: BoS item / component Standard Description, Standard Number Cables, General Test and Measuring Methods, PVC/XLPE insulated cables for working Voltage up to and including 1100 V, UV resistant for outdoor installation IS /IEC 69947.
- xi. The size of each type of DC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 1%.
- xii. The size of each type of AC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 2%.

7.12. POWER CONSUMPTION:

Regarding the generated power consumption, priority need to give for internal consumption first and thereafter any excess power can be exported to grid.

7.13. COMPLETION PERIOD

The proposed completion period shall be **10 weeks** from date of awarding the contract with the advance payment to successful bidder. Detailed project implementation schedule for 10 weeks to be provided with technical offer.

8. PROTECTIONS

The system should be provided with all necessary protections like earthing, lightning, and grid islanding as follows. All the regulations and grid code provisions in this regard must be complied with.

- 8.1. Earthing Protection:** Each of the structures used in this project should be grounded /earthed properly as per the existing approved norms. In addition the lightning arrester/masts should also be earthed

inside the array field. The earthing should be tested by authorized personnel and a test report should be obtained by the authorized personnel.

- 8.2. Lightning Protection:** The SPV power plant shall be provided with lightning & overvoltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The entire space occupying the SPV array shall be suitably protected against lightning by deploying required number of Lightning Arresters. Lightning protection should be provided as per the existing approved norms.
- 8.3. Surge Protection:** The bidding company should adequately design and use appropriate components towards surge protection.

9. GRID ISLANDING

The bidding company should ensure that in the event of power failure on the electric grid, appropriate measures be incorporated in the system so that the system is intact and no untoward incident occurs damaging the system and lives. Appropriate grid islanding provisions shall be incorporated in the system.

10. FIRE EXTINGUISHERS

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

- i) portable fire extinguishers,
- ii) sand buckets,
- iii) The fire extinguishers shall be provided on the roof or site where the PV arrays have been installed.

The installation of the fire extinguishers should conform to the existing norm approved by the govt.

11. DRAWINGS & MANUALS, TRAINING

The bidding company after getting the PO for the project shall supply the client with two sets of Engineering, GA drawings, electrical drawings and installation and O & M Manual. The bidding company shall also submit complete technical data sheets for each of the equipment giving details of the specifications along with the makes in their bid with basic design of the power plant and power evacuation, synchronization along with protection equipment. Approved ISI and reputed makes for equipments be used.

For complete electro-mechanical works, the bidding company shall supply complete design, details and drawings for approval to the client or its consultant before progressing with the installation work.

The bidders must provide appropriate and adequate training to the UBS staff for cleaning / handling /operations of the systems and the actions to be taken in case of emergencies, if any.

12. PLANNING & DESIGNING

The bidding company should carry out shadow analysis at this site and accordingly design strings & arrays layout considering the optimal usage of space, material and labour. The bidding company should submit the array layout drawings along with Shadow Analysis Report to the client for approval.

The client reserves the right to modify the landscaping design, layout and specification of the sub-systems and components at any stage as per local conditions/requirements.

The bidding company shall submit preliminary drawing for approval and based on any modification or recommendation, if any the company submit three sets and soft copy in CD of final drawing for formal approval to proceed with construction work.

13. DESIGN DRAWINGS / DOCUMENTS TO BE FURNISHED BY THE COMPANY AFTER AWARD OF CONTRACT

The company shall furnish the following drawings on award/intent and obtain approval.

1. General arrangement and dimensional layout.
2. Schematic drawing showing the requirement of PV panel, power conditioning unit(s)/inverter, junction boxes, AC and DC distribution boards, meters etc.
3. Structural drawings along with foundation details for the structure.
4. Itemized bill of material for complete PV plant covering all the components and associated accessories.
5. Layout of solar power array.
6. Shadow analysis of the roof.
7. Detailed/Final report on monthly/annual energy production assessment
8. As built drawings on completion of the project within 1 month of handing over.

14. NET METERING

The company shall give in detail the mode of net metering and the rules & regulations related to the charges applicable in Maharashtra. All related liasioning work must be undertaken and completed successfully by the bidder and cost included in the proposal.

15. TEST CERTIFICATES

The company shall make available to the client the Test Certificates/reports for all components used in the project to assure evidence of compliance with standards specified by MNRE. The client reserves the right to ask for any additional test certificates or carry out (random) tests at manufacturing location or at site to establish compliance with the specified standards.

16. CONFIRMATION TO MNRE TECHNICAL SPECIFICATION AND STANDARDS

The company shall ensure that all components and systems used under this scheme shall strictly adhere to the Technical Specifications and Guidelines issued by MNRE, and as amended from time to time. The solar system provided shall qualify for the central financial assistance/subsidy of the MNRE.

17. COMMERCIAL OFFER

The commercial offer shall be submitted in separate sealed envelope. The bidding company shall specify the project cost clearly mentioning that the total cost is inclusive of all taxes. The taxes shall be shown separately as per the financial bid format.

The bidding company shall also state if any taxes are applicable or exempted or not applicable for this project in Maharashtra. The bidding company shall also state that the charges for approvals from MNRE and CEIG, the inspection by the Government are included in the price quotes.

18. WARRANTY

The mechanical structures, electrical works including power conditioners/inverters/charge controllers/maximum power point tracker units/distribution boards/digital meters/switch gear/storage batteries, etc. and over all workmanship of the SPV power plants/ systems must be warranted against any manufacturing/ design/ installation defects for a minimum period of 5 years.

The bidding company shall state clearly the warranty applicable for the entire project component wise. This should include the material warranty, defects and /or failures due to manufacturing, defects and/or failures due to quality of materials, Non-conformity to specifications, faulty manufacturing and /or inspection process.

The warranty should also include performance warranty.

18.1 Material Warranty:

- a) The manufacturer should warrant the Solar Module(s) to be free from the defects and/or failures specified below for a period not less than five (05) years from the date of sale to the original customer
 - i. Defects and/or failures due to manufacturing
 - ii. Defects and/or failures due to quality of materials
 - iii. Non conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the manufacturer will repair or replace the solar module(s), at the Owners sole option
- b) If the operation or use of the system proves to be unsatisfactory during the warranty period (5 years), the bidder shall replace the faulty ones or carry out necessary repairs as per the warranty terms and conditions.
- c) The successful bidder shall undertake to supply spares free of cost for the maintenance of the offered items during the warranty period (5 years).

18.2 Performance Warranty:

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

If the performance of the system proves to be unsatisfactory the bidder shall replace the faulty ones or carry out necessary repairs as per the warranty terms and conditions

19. OPERATION & MAINTENANCE AND ANNUAL MAINTENANCE CONTRACT

The bidder shall be responsible for comprehensive operation and maintenance of the solar PV system for a period of 5 years from the date of successful commissioning and handing over. During this period, the bidder shall be responsible for supply of all spare parts, materials, and manpower as may be required from time to time for scheduled and preventive maintenance. O&M manual shall be supplied at the time of handing over and training provided to the local users/customer. The 1st year O& M service shall be free. From 2nd year till 5th year, AMC for comprehensive O&M must be signed.

The bidding company should state the nature of annual comprehensive O&M contract and monitoring arrangements after the initial period of five years.

20. DECLARATION BY THE BIDDING COMPANY

I/We.....

.....

.....

(Hereafter referred to as Tenderer)being desirous of tendering for the work, under this tender and having fully understood the nature of the work and having carefully noted all the terms and conditions, specifications etc. as mentioned in the tender document do hereby declare that:

1. The Tenderer is fully aware of all the requirements of the tender document and agrees with all provisions of the tender document and accepts all risk, responsibilities and obligations directly or indirectly connected with the performance of the tender.
2. The Tenderer is fully aware of all the relevant information for proper execution of the proposed work, with respect to the proposed place of works/site, its local environment, approach road and connectivity etc and is well acquainted with actual and other prevailing working conditions, availability of required material and labour etc at site.
3. The Tenderer is capable of executing and completing the work as required in the tender and is financially solvent and sound to execute the tendered work. The tenderer is sufficiently experienced and competent to perform the contract to the satisfaction of the Seminary. The Tenderer gives the assurance to execute the tendered work as per the specifications, terms and conditions of the tender on award of work.
4. The Tenderer has no collusion with other Tenderers, any employ of the Seminary or with any other person or firm in preparation of the tender.
5. The Tenderer has not been influenced by any statement or promises by the Seminary or any of its employees but only by the tender document.
6. The Tenderer is familiar with all general and special laws, acts, ordinances, rules and regulations of the Municipal, District, State and Central Government that may affect the work, its performance or personnel employed therein.
7. The Tenderer has never been debarred from similar type of work by any Government Undertaking/Department. (An undertaking on Non-Judicial Stamp paper worth Rs.100/- in this regard shall be submitted)

8. The Tenderer accepts that the earnest money / security deposit/BG may be absolutely forfeited by the Seminary if the selected bidder fails to sign the contract or to undertake the work within stipulated time.
9. This offer shall remain valid for acceptance for 4 (four) months from the proposed date of submission of the tender
10. All information and statements submitted with the tender are true and correct to the best of my/our knowledge and belief.

Signature of the Tenderer / Company

Date:

21. BIDDING COMPANY'S UNDERTAKING COVERING LETTER

(Letter shall be submitted on Company's Letter Head)

To
The Director of Administration,
Union Biblical Seminary,
Bibvewadi, Pune – 411 037

Date:

Dear Sir,

Sub: Design, Supply, Installation, Testing and Commissioning of 70/100 KW (AC) Rooftop Solar Power Plant with Grid Connection under Net Metering Policy in Union Biblical Seminary.

Tender Reference: _____

1. We have examined the Tender for design, supply, installation, testing and commissioning of 70/100 KW(AC) solar power plant with grid connection under net metering policy in Union Biblical Seminary as specified in the tender document. We undertake to meet the requirements and services as required and as set out in the tender document.
2. We attach our Technical Bid and Financial Bid in separate sealed covers as required by the Tender both of which together constitute our proposal, in full conformity with the said Tender.
3. We have read the provisions of Tender and confirm that these are acceptable to us. We further declare that additional conditions, variations, deviations, if any, found in our response shall not be given effect to.
4. We undertake, if our Bid is accepted, to adhere to the requirements as specified in the Tender or such modified plan as may subsequently be agreed.
5. We agree to unconditionally accept all the terms and conditions set out in the Tender document and also agree to abide by this Bid response for a period as mentioned in the Tender from the date fixed for bid opening and it shall remain binding upon us with full force and virtue, until within this period a formal contract is prepared and executed, this Bid response, together with your written acceptance thereof in your notification of Tender, shall constitute a binding contract between us and Seminary.
6. We affirm that the information contained in the Technical Bid or any part thereof, including its schedules, and other documents, etc., delivered or to be delivered to the Seminary is true, accurate

and complete. This proposal includes all information necessary to ensure that the statements therein do not in whole or in part mislead the Seminary as to any material fact.

7. We also agree that you reserve the right in absolute sense to reject all or any of the products/service specified in the bid response without assigning any reason whatsoever.
8. It is hereby confirmed that we are entitled to act behalf of our company/organization and empowered to sign this document as well as such other documents, which may be required in this connection.
9. We agree to use only indigenous PV modules in this project.
10. We declare that our company/organization is not blacklisted by any of the State or Central Government and organizations of the State or Central Government.
11. We undertake to use the BOS components other that PV Modules and Solar grid tie Invertors as per the standards stipulated.

Signature of the Authorised Person:

Name of the Authorised Person:

Designation:

Name & Address of the Bidder:

Stamp of the Bidder:

.....

CERTIFICATE AS TO AUTHORISED SIGNATORIES

I, (Name).....(Designation).....certify that (Name).....who signed the above Bid has been duly authorised to sign the same on behalf of our Organisation.

Date:

Signature:

Seal:

22. ARTICLES OF AGREEMENT

(on Rs.100/- non-judicial stamp paper)

ARTICLES OF AGREEMENT made the.....day of2016 between Principal of Union Biblical Seminary, Bibvewadi, Pune 411037 Maharashtra of (hereinafter referred to as the “**Employer**”) of the one part and(hereinafter referred “**The Contractor**”) of the other part, whereas the **Employer** is desirous of getting the work of “Design, Supply, Installation, Testing and Commissioning of 70/100 KW(AC) Rooftop Solar Power Plant with Grid Connection under Net Metering Policy” in Union Biblical Seminary, Bibvewadi Pune.

AND WHEREAS THE CONTRACTOR has agreed to execute the same upon and subject to the conditions set forth in the Schedule hereto (hereinafter referred to as “Said Conditions”) the works as specified at a cost of Rs.....(Rupees.....) (hereinafter referred to as “Said Contract Amount”)

NOW IT IS HEREBY AGREED AS FOLLOWS:

1. In consideration of the said sum to be paid at the times and in the manner set forth in the said conditions, the contractor shall upon and subject to the said conditions, execute and complete the work as described in the said specifications.
2. The Employer shall part the contractor the said sum or such sums as shall become payable hereunder at the times and in the manner specified in the said conditions.
3. The term “Employer” in the said conditions shall mean the said M/s Union Biblical Seminary, or in the event of their ceasing to be the Employer for the purpose of this contract, such other person as shall be nominated for that purpose by the Employer, not being a person to whom the contractor shall object for reasons considered to be sufficient by the Arbitrator mentioned in the said conditions provided always that no persons subsequently appointed to be the Employer under this contract shall be entitled to disregard or over-rule any previous decision or approval or direction given or expressed by the Employer.
4. Tender Documents containing work order Notice to the Contractor, Conditions of Contract, Appendix thereto, Special Conditions of Contract and Specifications shall be read and studied as forming part of this agreement and the parties hereto shall respectively abide by and submit themselves to the conditions and stipulations and perform the agreement on their part respectively in such conditions contained.
5. Time shall be considered as the essence of this agreement and the contractor hereby agrees to commence the work soon after the site is handed over to him or date of issue of work order to execute the work in 10 weeks subject to nevertheless to the provisions for extension of time.
6. This agreement and contract shall be deemed to have been made in Pune and any questions or dispute arising out of or in any way connected with this Agreement and Contract shall be deemed to have arisen in Pune and only the courts in Pune shall have jurisdiction to determine the same. The limitation period will be 90 days from the date of dispute having arisen.
7. The contract may also be put to an end at any time by the Seminary upon giving seven days notice to the Installer. The Installer agrees for Design, Supply, Installation, Testing and Commissioning of 70/100 KW(AC) Solar Power Plant with Grid Connection under Net Metering Policy in Union Biblical Seminary as specified in the Tender with 60 months warranty as per the clause and as per the Terms & Conditions given below:

- a) Installation & Completion Schedule: The entire work involving design, supply, installation and commissioning of 70/100 (AC) KW Solar Power Plant with Grid connection under Net Metering Policy shall be completed within 10 weeks from the date of issue of work order by the purchaser.
- b) Service: Empanelled Installer shall have minimum of one service centre in Pune or Mumbai. The Installer shall visit the site at least once in a quarter, to attend routine maintenance, during the 5 years warranty period. However, in case of malfunctioning of the system, the contractor shall attend for rectification of defects within 3 working days from the date of lodging complaint.
- c) Installation & Commissioning Location: The Grid connected Solar Power Plants shall be installed and commissioned at Union Biblical Seminary under Net Metering Scheme.
- d) The validity of tender and the price accepted will be 4 months.
- e) The following documents shall be deemed to form and be read and construed as part of this contract.
 - i. Technical Specifications
 - ii. Tender Terms & Conditions
 - iii. Detailed final offer of the successful bidder

AS WITNESS our hand this.....day of2017

Signed by the said in the presence of:

WITNESS

Signature:

Name & Address:

CONTRACTOR

EMPLOYER

WITNESS

Signature:

Name & Address:

23 FORMAT FOR FINANCIAL BID

(On company letter head, duly signed with company seal)

Financial Bid

We M/S _____ undertake to submit our financial bid for complete design, engineering, supply, installation and commissioning of 70/100 KW(AC) rooftop solar power system to be installed at UBS, Pune and comprehensive O&M up to five years as per the tender conditions.

Description	Gross Amount (Rs. Lakh)	MNRE Central Financial Assistance /Subsidy (Rs. Lakh)	Service Tax (@ %)	Total Amount (Rs. Lakh)
	A	B	C	D
70/100 KW (AC) rooftop solar power system with remote monitoring and net metering as per tender terms and conditions				D1= A – B+C
O&M Charges -1 st year	Free – No O&M charges for 1 st year of operations	NOT APPLICABLE	Free	Free
O&M Charges 2 nd year		NOT APPLICABLE		D2= A+C
O&M Charges 3 rd year		NOT APPLICABLE		D3= A+C
O&M Charges 4 th year		NOT APPLICABLE		D4= A+C
O&M Charges 5 th year		NOT APPLICABLE		D5= A+C
			GRAND TOTAL	D1+D2+D3+D4+D5

Note: The tender and financial bid will be evaluated based on the grand total arrived in the above format. However the service tax at the prevailing rate shall be paid at the time of payment.

Authorized Signatory and Seal of organization
