
Mahavir Universe Phoenix C.H.S Ltd.

Reg. No: MUM/W-S/HSG(TC)/11042/2018-19 Dt. 20.2.19

Invites

Request for Selection (RFS) of Bidders

For

Implementation of 80KW plus

Grid Connected Roof Top Solar PV Net Metering System

At

Mahavir Phoenix C.H.S Ltd.,

LBS Marg, Bhandup (W), Mumbai – 400 078

pxchs.solar@gmail.com

RFP No: **Phoenix/TENDER/Solar/OCT2020**

Dated: XXX/10/2020

Mahavir Universe Phoenix C.H.S Ltd.

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Mahavir Universe Phoenix C.H.S Ltd., (hereinafter referred to as “**PXCHS**”), invites bids from the eligible bidders to participate in the Request for Selection (RFS) of bidders for Design, supply, erection, testing and commissioning including warranty, operation & maintenance of Grid Connected Roof Top Solar PV power system of 80-90 kw capacity.

While PXCHS has specified above capacity based on available area, it is the bidder’s responsibility to carry out their own pre-bid survey if they so desire with prior intimation to the society office and submit the proposal stating actual capacity that can be installed on shadow free elevated structure.

The bidder would be responsible for:

- 1) Obtaining approval from MSEDCL for grid connectivity and installation of the Solar PV net metering system.
- 2) Obtaining / Liaisoning with Govt department / BMC for necessary approvals required prior to installation of Solar Plant
- 3) For designing and construction of Elevated Structure to install **maximum** capacity solar Power Plant.
- 4) Installation, validation and commissioning the complete Solar PV System
- 5) Providing a System Working Guarantee – PXCHS seeks a penalty from the bidder, in the event of the Solar PV System not being available for a period in excess of 5 days.
- 6) Providing a minimum yearly KWh guarantee not less than 90% for the first 2 years (to be considered from start-up date of net metering system). PXCHS seeks a penalty from the bidder, in the event of the Solar PV System not providing a minimum KWh guarantee per annum on a year-to-year basis.
- 7) Maintenance of the Solar PV System. PXCHS seeks a cost for maintaining the Solar PV System (AMC) on an annualized basis, from 3rd year onwards.
- 8) Obtaining subsidy, as applicable from the competent authority. (Sensible ?!!)

For the implementation of above mentioned work, Bidders should submit their bid proposals in a sealed cover, complete in all aspect on or before XXXth November 2020.

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DISCLAIMER:

1. Though adequate care has been taken while preparing the RFS document, the Bidders shall satisfy themselves that the document is complete in all respects. Intimation of any discrepancy shall be given to this office immediately. If no intimation is received from any Bidder within 2 (two) days from the date of notification of RFS/Issue of the RFS documents, it shall be considered that the RFS document is complete in all respects and has been received by the Bidder.
2. PXCHS reserves the right to modify, amend or supplement this RFS document including all formats and Annexures.
3. While this RFS has been prepared in good faith, neither PXCHS nor their employees or advisors make any representation or warranty, express or implied, or accept any responsibility or liability, whatsoever, in respect of any statements or omissions herein, or the accuracy, completeness or reliability of information, and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of this RFS, even if any loss or damage is caused by any act or omission on their part.

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BID INFORMATION SHEET

RFS No. and Date	PXCHS/Solar/Oct 2020; Dated: XXX Oct 2020
Work Description	<ol style="list-style-type: none">1. Design, Engineering, Supply, Storage, Erection, Testing and Commissioning of the Grid Connected Rooftop Solar PV Net Metering System including Warranty and Maintenance of project for 2 years from date of commissioning of project.2. To provide AMC for maintenance of total Solar PV Net Metering System for a period of 3 years after completion of 2 years Warranty period.
Work Duration	Total work duration from date of issuance of Purchase Order till successful start-up and commissioning of Net Metering System will be 120 days.
Closing Date and Time for repose to RFS	XXX November 2020, Before 6:00PM
Address for submission of response to RFS	Techno-commercial bids prepared as per bidding process stipulated below; which is correct and complete in all regards must be sent to: PXCHS Solar Project The Secretary, Mahavir Universe Phoenix C.H.S. Ltd. L.B.S. Marg, Bhandup (West), Mumbai – 400078, Maharashtra

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DEFINITIONS & ABBREVIATIONS

In this “Bid / RFS Document” the following words and expression will have the meaning as herein defined where the context so admits:

“**Affiliate**” shall mean a company that either directly or indirectly

- a. controls or
- b. is controlled by or
- c. is under common control with

Bidding Company and “**control**” means ownership by one company of at least twenty six percent (26%) of the voting rights of the other company.

“**Benchmark Cost**” shall mean per Wp cost defined by MNRE for solar power plants without battery.

“**B.I.S.**” shall mean specifications of Bureau of Indian Standards (BIS);

“**Bid/Tender**” shall mean the Techno Commercial and Price Bid submitted by the Bidder along with all documents/ credentials/ attachments/ annexure etc., in response to this RFS, in accordance with the terms and conditions hereof.

“**Bidder/Bidding Company**” shall mean Bidding Company submitting the Bid. Any reference to the Bidder includes Bidding Company/ including its successors, executors and permitted assigns as the context may require”;

“**Bid Deadline**” shall mean the last date and time for submission of Bid in response to this RFS as specified in Bid Information Sheet;

“**Commissioning**” means Successful operation of the Project / Works by the Contractor, for the purpose of carrying out Performance Test(s) as defined in RFS.

“**Company**” shall mean a body incorporated in India under the Companies Act, 1956 or Companies Act, 2013 including any amendment thereto.

“**Capacity Utilization Factor**” (**CUF**) means the ratio of the actual output from a solar plant over the year (kWh) to the maximum possible output from it for a year (kWh) under ideal conditions.

$$\text{CUF} = \text{Actual Plant Output in kWh over the year} / (\text{Installed Plant Capacity in kW} \times 365 \times 24).$$

Monthly CUF:
$$\text{Monthly Plant output in kWh} / (\text{installed plant capacity in kW} \times \text{number of days in a month} \times 24).$$

“**Eligibility Criteria**” shall mean the Eligibility Criteria as set forth in Clause 3 of this RFS;

“**Price Bid**” shall mean Envelope III of the Bid, containing the Bidder’s quoted Price as per the Section- IV of this RFS;

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“Qualified Bidder” shall mean the Bidder(s) who, after evaluation of their Techno Commercial Bid as per Clause 3.4 of Section-I stand qualified for opening and evaluation of their Price Bid;

"RFS" shall mean Request for Selection (RFS)/ Bid document/ Tender document

“Rooftop Solar PV” shall mean solar PV array/system installed on the steel elevated structure on the building terrace.

“Successful Bidder(s)/ Contractor/ Project Developers(s)” shall mean the Bidder(s) selected by PXCHS pursuant to this RFS for Implementation of Grid Connected Roof Top Solar PV System as per the terms of the RFS Documents.

“Wp” shall mean Watt Peak

“PR” shall mean Performance Ratio

INTERPRETATIONS

1. Words comprising the singular shall include the plural & vice versa
2. An applicable law shall be construed as reference to such applicable law including its amendments or re-enactments from time to time.
3. Different parts of this contract are to be taken as mutually explanatory and supplementary to each other and if there is any differentiation between or among the parts of this contract, they shall be interpreted in a harmonious manner so as to give effect to each part.
4. The table of contents and any headings or sub headings in the contract has been inserted for case of reference only & shall not affect the interpretation of this agreement.

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SECTION - I : INTRODUCTION, BID DETAILS AND INSTRUCTIONS

INTRODUCTION

The Bidder is advised to read carefully all instructions and conditions appearing in this document and understand them fully. All information and documents required as per the bid document must be furnished. Failure to provide the information and/ or documents as required may render the bid technically unacceptable.

The bidder shall be deemed to have examined the bid document, to have obtained his own information in all matters whatsoever that might affect carrying out the works in line with the scope of work specified elsewhere in the document at the offered rates and to have satisfied himself to the sufficiency of his bid. The bidder shall be deemed to know the scope, nature and magnitude of the works and requirement of materials, equipment, tools and labour involved, wage structures and as to what all works he has to complete in accordance with the bid documents irrespective of any defects, omissions or errors that may be found in the bid documents.

BID DETAILS:

The bidding process under this rooftop scheme is for a 80.0 KWp Capacity. The capacity may be (+) 10 KWp depending on availability of shadow free area.

Maximum allowable project cost (including construction of elevated structure) under CAPEX model is Rs.XXX/- per Wp (net of subsidy) excluding applicable taxes. Any bidder quoting more than the maximum allowable project cost shall be treated as non-responsive and shall not be considered for evaluation.

INSTRUCTIONS TO THE BIDDERS

GENERAL

Tender Bidding Methodology: Sealed Bid, Single Stage Two Envelope (technical proposal and cost proposal in separate sealed envelopes)

ELIGIBILITY CRITERIA

The Bidder should be a body incorporated (LLP or Public or Pvt. Ltd.) in India under the respective acts and be engaged in the business of Solar Power.

NB: A copy of certificate of incorporation shall be furnished in the bid.

Technical Eligibility Criteria

- The Bidder should have designed, erected, supplied, installed and commissioned reasonable number of Grid Connected Solar PV power Projects, under the Net Metering Scheme, having a capacity of not less than 50 kW which should have been commissioned at least 12 months prior to Techno-Commercial Bid Opening date. Within preceding 2 financial year, the Bidder should also have a commissioned capacity of at least 2 Grid connected Solar PV Power Projects under the Net Metering Scheme. **A list of such projects, with client contact details should be provided with the bid, which could be cross-verified at the discretion of PXCHS.**

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- Bidder should not be blacklisted from Ministry of Corporate Affairs or any other Government bodies/PSUs etc.
- Bidder should have valid PAN/TAN/GST Registration Number under current GST rules or as per valid statutory requirements. Copies of certificate of incorporation and all other documents as aforesaid shall be furnished along with the bid.

NB: If the bidder's submitted information is found to be false declaration or misrepresentation, the bidder(s) shall be out rightly rejected.

Financial Eligibility Criteria

The Bidder should have an Annual Turnover or Net worth as indicated below.

i. The Annual turnover of Rupees 1.00 Crore exclusively related to Solar Power Plant Installation in any one of the last 2 financial years or projected for current FY2020 subject to the condition that the Bidder should at least have completed three financial year.

CA Certified or Self attested Financials last year of the company to be submitted

Other Bidding Conditions -

Earnest Money Deposit (EMD)

- All bidders must submit EMD amount of Rs.1,00,000/- (Rupees One Lac Only) along with tender document.
- Submission of Earnest Money Deposit (refundable, without interest) should be done by Demand Draft and it is to be made in favor of "Mahavir Phoenix C.H.S. Ltd." payable at Mumbai.
- EMD of successful bidder will be retained and refunded after receipt of written Order Acceptance on bidder company's letter head with sign and stamp, within 15 days. This Order Acceptance should contain references of PXCHS order awarded to successful bidder. Without receipt of Order Acceptance letter from bidder, EMD will not be refunded.
- EMD of unsuccessful bidder(s) will be returned in the event of bid not being accepted within 15 days.

Retention Money / Performance Bank Guarantee (PBG)

- Successful bidder shall submit Performance Security in the form of Performance Bank Guarantee valued at 5% of the TOTAL ORDER VALUE; which shall be submitted immediately after delivery of GOODS and shall be valid for a minimum period of 24 months from date of commencement of net metering system.
- In the event bidder does not submit the Performance Bank Guarantee, 5% of payment will be retained for a minimum period of 24 months from date of commencement of net metering system.
- This Retention Money will be refunded (as it is without interest) to the bidder after completion of retention period mentioned in Point b above subject to fulfillment of performance obligations.

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BID SUBMISSION BY THE BIDDER

The information and/or documents shall be submitted by the Bidder as per the formats specified in Section-IV & Section -V of this document.

Strict adherence to the formats wherever specified, is required. Wherever, information has been sought in specified formats, the Bidder shall refrain from referring to brochures /pamphlets. Non-adherence to formats and / or submission of incomplete information may be a ground for declaring the Bid as non-responsive. Each format has to be duly signed and stamped by the authorized signatory of the Bidder.

The Bidder shall furnish documentary evidence in support of meeting Eligibility Criteria as indicated in Clause no. 3 to the satisfaction of PXCHS.

BIDDING PROCESS

BID FORMATS

The Bid in response to this RFS shall be submitted by the Bidders in the manner provided in Clause 3 of Section -I. The Bid shall comprise of the following:

(A) ENVELOPE – I – COVERING LETTER, TECHNO-COMMERCIAL DOCUMENTS

- i. Covering Letter as per prescribed Format-1.
- ii. General particulars of bidders as per Format-2
- iii. Documents in support of meeting Eligibility Criteria as per Clause no. 3.
- iv. Signed and stamped Copy of RFS Documents including amendments & clarifications by Authorized signatory on each page.

(B) ENVELOPE II- PRICE BID(S) AS PER SECTION-IV

BID DUE DATE

The Bidder should submit the Bids so as to reach the address indicated below by 18.00 hrs (IST) on or before XXX Nov 2020.

PXCHS SOLAR PROJECT

The Secretary,
Mahavir Phoenix C.H.S. Ltd.,
L.B.S. Marg, Bhandup (West),
Mumbai – 400078, Maharashtra

VALIDITY OF BID

The bid and the Price Schedule included shall remain valid for **a period of 60 days** from the date of techno-commercial bid opening, with bidder having no right to withdraw, revoke or cancel his offer or unilaterally vary the offer submitted or any terms thereof.

The bid envelope shall be sealed properly & shall indicate the Name & address of the Bidder. The Bid must be complete in all technical and commercial respect and should contain requisite certificates, informative literature etc. as required in the Bid document. Each page of the Bid document should be signed & stamped. Bids with any type of

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change or modification in any of the terms/ conditions of this document shall be rejected. If necessary, additional papers may be attached by the Bidder to furnish/ submit the required information. Any term / condition proposed by the Bidder in his bid which is not in accordance with the terms and conditions of the RFS document or any financial conditions, payment terms, rebates etc. mentioned in Price Bid shall be considered as a conditional Bid and will make the Bid invalid.

PAYMENT TERMS

PXCHS agrees to make payments to successful bidder on completion by bidder each of the following milestones:

- a. 10% (Ten percent) of Total Order Value shall be payable along with the Purchase Order or Work Order issued to the successful bidder. Advance payments to the Vendor under the Contract shall be made against and simultaneously with the furnishing of Advance Bank Guarantee (valid for 90 days) from either a Nationalized/Public Sector Bank or one of the following Scheduled Private Banks viz. ICICI Bank, HDFC Bank and Axis Bank.
- b. 50% (Fifty) of Total Order Value shall be payable net 15 days from date of receipt of goods and inspection at PXCHS and upon receipt of original documents i.e. Invoice, Packing List, Warranty Certificates, Delivery documents. Payment will be made only after receipt of 100% goods as per agreed BOM. No payments will be made against partial deliveries.
- c. 10% (Ten) of Total Order Value shall be payable after completion of installation, commissioning, testing and commencement of power generation.
- d. 25% (Twenty-Five) of Total Order Value shall be payable after successful startup and commissioning of Net Metering System, and issue of project completion certificate.
- e. 5% (Five) of Total Order Value shall be payable after receipt of PBG or will be retained in the event of non-receipt of PBG as retention money.

TDS will be deducted as per the prevailing rules & regulations. Vendor to provide necessary PAN and TAN information.

COST OF BIDDING

The bidder shall bear all the costs associated with the preparation and submission of bid, and the society will in no case be responsible or liable for those costs, under any conditions. The Bidder shall not be entitled to claim any costs, charges and expenses of and incidental to or incurred by him through or in connection with submission of bid even though PXCHS may elect to modify/withdraw the invitation of Bid.

The Successful Bidder shall sign and stamp the Work Order and return the signed & stamped duplicate copy of the same to PXCHS within 3 days from the date of its issue.

RIGHT TO WITHDRAW THE RFS AND TO REJECT ANY BID

This RFS may be withdrawn or cancelled by PXCHS at any time without assigning any reasons thereof. PXCHS further reserves the right, at its complete discretion, to reject any or all of the Bids without assigning any reasons whatsoever and without incurring any liability on any account.

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PXCHS reserves the right to interpret the Bid submitted by the Bidder in accordance with the provisions of the RFS and make its own judgment regarding the interpretation of the same. In this regard PXCHS shall have no liability towards any Bidder and no Bidder shall have any recourse to PXCHS with respect to the selection process. PXCHS shall evaluate the Bids using the evaluation process specified in Section -I, at its sole discretion. PXCHS decision in this regard shall be final and binding on the Bidders.

PXCHS reserves its right to vary, modify, revise, amend or change any of the terms and conditions of the Bid before submission. The decision regarding acceptance of bid by PXCHS will be full and final.

ZERO DEVIATION

This is a ZERO Deviation Bidding Process. Bidder is to ensure compliance of all provisions of the Bid Document and submit their Bid accordingly. Tenders with any deviation to the bid conditions shall be liable for rejection.

EXAMINATION OF BID DOCUMENT

The Bidder is required to carefully examine the Technical Specification, terms and Conditions of Contract, and other details relating to supplies as given in the Bid Document.

The Bidder shall be deemed to have examined the bid document including the agreement/ contract, to have obtained information on all matters whatsoever that might affect to execute the project activity and to have satisfied himself as to the adequacy of his bid. The bidder shall be deemed to have known the scope, nature and magnitude of the supplies and the requirements of material and labour involved etc. and as to all supplies he has to complete in accordance with the Bid document.

Bidder is advised to submit the bid on the basis of conditions stipulated in the Bid Document. Bidder's standard terms and conditions if any will not be considered. The cancellation / alteration / amendment / modification in Bid documents shall not be accepted by PXCHS.

Bid not submitted as per the instructions to bidders is liable to be rejected. Bid shall confirm in all respects with requirements and conditions referred in this bid document.

B. GENERAL CONDITIONS OF CONTRACT (GCC)

SCOPE OF WORK

The scope of work for the bidder include Identification of rooftop of building, Obtaining No Objection Certificate (NOC)" from Distribution Company (DISCOM) for grid connectivity, Obtaining necessary approvals from Local/Govt Bodies, wherever required to complete design, engineering, manufacture, supply, storage, civil work, erection, testing & commissioning of the grid connected rooftop solar PV project

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including operation and maintenance (O&M) of the project for a period of Two years after commissioning.

PROJECT COST /LEVELLIZED TARIFF

The Project cost/Levellized tariff shall include all the costs related to above Scope of Work. Bidder shall quote for the entire facilities on a "single responsibility" basis such that the total Bid Price covers all the obligations mentioned in the Bidding Documents in respect of Design, Supply, Erection, Testing and Commissioning including Warranty, Operation & Maintenance for a period of 2 years (under CAPEX Model) goods and services including spares required if any during O&M period. The Bidder has to take all permits, approvals and licenses, Insurance etc., provide training and such other items and services required to complete the scope of work mentioned above.

The project cost/levellized tariff quoted is on lump sum turnkey basis and the bidder is responsible for the total Scope of Work described at Clause above.

The project cost/levellized tariff shall remain firm and fixed and shall be binding on the Successful Bidder till completion of work. No escalation will be granted on any reason whatsoever. The bidder shall not be entitled to claim any additional charges, even though it may be necessary to extend the completion period for any reasons whatsoever.

The project cost/levellized tariff shall be inclusive of all duties and taxes, insurance etc. The prices quoted by the firm shall be complete in all respect and no price variation /adjustment shall be payable

The operation & maintenance of Solar Photovoltaic Power Plant would include wear, tear, overhauling, machine breakdown, insurance, and replacement of defective modules, invertors / Power Conditioning Unit (PCU), spares, consumables & other parts for a period of 2 years.

The Bidder shall complete the Price Bid as per (Format-B) as furnished in the RFS Documents.

INSURANCE

The Bidder shall be responsible and take an Insurance Policy for transit-cum-storage-cum-erection for all the materials to cover all risks and liabilities for supply of materials on site basis, storage of materials at site, erection, testing and commissioning.

The Bidder shall also take insurance for Third Party Liability covering loss of human life, engineers and workmen and also covering the risks of damage to the third party/material/equipment/properties during execution of the Contract. Before commencement of the work, the Bidder will ensure that all its employees and representatives are covered by suitable insurance against any damage, loss, injury or death arising out of the execution of the work or in carrying out the Contract. Liquidation, Death, Bankruptcy etc., shall be the responsibility of bidder.

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WARRANTIES AND GUARANTEES

The Bidder shall warrant that the goods supplied under this contract are new, unused, of the most recent or latest technology and incorporate all recent improvements in design and materials. The bidder shall provide warranty covering the rectification of any and all defects in the design of equipment, materials and workmanship for a period of at least 5 years from the date of commissioning, for all equipment other than the Solar Panels which would be warranted for a period of 25 years.

The responsibility of operation of Warranty and Guarantee clauses and Claims/ Settlement of issues arising out of said clauses shall be responsibility of the Successful bidder and PXCHS will not be responsible in any way for any claims whatsoever on account of the above.

The selected vendor has to transfer all the Guarantees /Warranties of the different components to the owner of the project PXCHS. The responsibility of operation of Warranty and Guarantee clauses and Claims/ Settlement of issues arising out of said clauses shall be of the selected vendor during the warranty period. The same terms must apply to the period under O&M. Detailed terms and conditions related to warranty/guarantee and their execution shall be covered as a part of the contract.

TYPE AND QUALITY OF MATERIALS AND WORKMANSHIP

The design, engineering, supply, installation, testing and performance of the equipment shall be in accordance with latest appropriate IEC/ Indian Standards as detailed in the Section- III (Technical specifications) of the bid document. Where appropriate Indian Standards and Codes are not available, other suitable standards and codes as approved by the MNRE shall be used.

Any supplies which have not been specifically mentioned in this Contract but which are necessary for the design, engineering, manufacture, supply & performance or completeness of the project shall be provided by the Bidder without any extra cost and within the time schedule for efficient and smooth operation and maintenance of the SPV plant.

GUIDELINES TO BE MANDATORILY FOLLOWED BY BIDDERS

The bidder shall be responsible for all the required activities for successful operation of the Rooftop Solar PV system for a period of 5 years for projects.

Periodic cleaning of solar modules shall be taken up by the Bidder. Frequency to be specified by the Bidder.

Periodic checks of the Modules, PCUs and Bill of Supply shall be carried out as a part of routine preventive and breakdown maintenance.

Immediate replacement / repair on-site of defective Modules, Invertors and other equipment as and when required.

If negligence/ mal-operation on part of the Bidder's operator results in failure of equipment, such equipment should be repaired/ replaced by the Bidder free of cost.

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A maintenance record register is to be maintained by the Bidder with effect from Commissioning to record the daily generation, regular maintenance work carried out as well as any preventive and breakdown maintenance along with the date of maintenance, reasons for the breakdown, duration of the breakdown, steps taken to attend the breakdown, etc.

METERING AND GRID CONNECTIVITY

Metering and grid connectivity of the roof top solar PV system under this scheme would be the responsibility of the Bidder in accordance with the prevailing guidelines of MSEDCL/DISCOM. PXCHS could facilitate connectivity, however the entire responsibility lies with bidder only.

PLANT PERFORMANCE EVALUATION

The successful bidder shall be required to meet minimum guaranteed generation with Performance Ratio (PR) at the time of commissioning and related Capacity Utilization Factor (CUF) as per the GHI levels of the location during the O&M period. PR should be shown minimum of 90% at the time of inspection for initial commissioning acceptance and online monitoring of the same should be made available. The PR will be measured at Inverter output level during peak radiation conditions.

The downtime of the system should not be more than 10 days in a financial year. System failure of more than 4 hours between the 9.30 am to 5.30 pm period is considered as 1-day downtime.

The output of the system for the first full year of operation in terms of AC units over one year should be at least 98% of the rated (designed) output. Derating of at most 1% per year over the same will be allowed for the subsequent 9 years of the operation.

The output must be pure 'sinewave', with harmonics content less than a specified upper limit. This is essential for syncing with grid.

In case of any degradation in the performance, the vendor shall be responsible to take the corrective actions with no additional cost to PXCHS.

PROGRESS REPORT

The bidder shall submit the progress report every 7 days on e-mail to PXCHS. PXCHS will have the right to depute his/their representatives to ascertain the progress of contract at the premises of works of the bidder.

PROJECT INSPECTION.

The project will be monitored by PXCHS or their authorized representative. The project will be inspected for quality at any time during commissioning or after the completion of the project either by PXCHS or their authorized representative.

PXCHS may also depute a technical person(s) from its list of empanelled experts for inspection, Third party verification, monitoring of system installed to oversee, the implementation as per required standards and also to visit the manufactures facilities to

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check the quality of products as well as to visit the system integrators to assess their technical capabilities as and when required.

JURISDICTION

The Contract shall be interpreted in accordance with the laws of the Union of India, and subject to the jurisdiction of Mumbai.

SETTLEMENT OF DISPUTE

If any dispute of any kind whatsoever arises between PXCHS and the Successful bidder in connection with or arising out of the contract including without prejudice to the generality of the foregoing, any question regarding the existence, validity or termination, the parties shall seek to resolve any such dispute or difference by mutual consent.

If the parties fail to resolve, such a dispute or difference by mutual consent, within 45 days of its arising, then the dispute shall be referred by either party by giving notice to the other party in writing of its intention to refer to arbitration as hereafter provided regarding matter under dispute. No arbitration proceedings will commence unless such notice is given.

Arbitration proceedings shall be conducted with The Arbitration and Conciliation Act, 1996. The venue or arbitration shall be Mumbai.

Notwithstanding any reference to the arbitration herein, the parties shall continue to perform their respective obligations under the agreement unless they otherwise agree.

Cost of arbitration shall be equally shared between the Successful bidder or Contractor and PXCHS.

Damage to Society Property: Any damage to the society property during project execution will be recovered from bills payable to vendor

INDEMNITY CLAUSE & CORRUPT OR FRAUDULENT PRACTICES

The successful bidder shall defend and indemnify the society, its managing committee and its employees from and against all allegations, claims, actions, suits and demand for damages which arise out of any act of omission and commission on the part of the vendor.

The PXCHS requires that Bidders/ Contractors should follow the highest standard of ethics during the execution of contract. In pursuance of this policy, the PXCHS defines, for the purposes of this provision, the terms set forth as follows :

- “corrupt practice” means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the bid process or in contract execution; and
- “fraudulent practice” means a misrepresentation of facts in order to influence a bid process or the execution of a contract to the detriment of the PXCHS/Govt scheme, and includes collusive practice among Bidders (prior to or after Bid submission) designed to establish Bid prices at artificial non-competitive levels and to deprive the PXCHS of the benefits of free and open competition;

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- will declare the bidder ineligible/debarred, if at any time it is found that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing the project.

FORCE MAJEURE

For purpose of this clause, "Force Majeure" means an event beyond the control of the contractor and not involving the contractor's fault or negligence and not foreseeable, either in its sovereign or contractual capacity. Such events may include but are not restricted to, Acts of God, wars or revolutions, fires, floods, epidemics, quarantine restrictions and fright embargoes etc. Whether a "Force majeure" situation exists or not, shall be decided by PXCHS and its decision shall be final and binding on the contractor and all other concerned.

In the event that the contractor is not able to perform his obligations under this contract on account of force majeure, he will be relieved of his obligations during the force majeure period. In the event that such force majeure extends beyond six months, PXCHS has the right to terminate the contract.

If a force majeure situation arises, the contractor shall notify PXCHS in writing promptly, not later than 14 days from the date such situation arises. The contractor shall notify PXCHS not later than 3 days of cessation of force majeure conditions. After examining the cases, PXCHS shall decide and grant suitable additional time for the completion of the work, if required.

LANGUAGE

All documents, drawings, instructions, design data, calculations, operation, maintenance and safety manuals, reports, labels and any other data shall be in English Language. The contract agreement and all correspondence between the SECI and the bidder shall be in English language.

OTHER CONDITIONS

The Successful bidder or its subcontractors shall not display the photographs of the work and not take advantage through publicity of the work without written permission of PXCHS.

The Successful bidder or its subcontractors shall not make any other use of any of the documents or information of this contract, except for the purposes of performing the contract.

SUCCESSORS AND ASSIGNEES:

In case the PXCHS or Successful bidder may undergo any merger or amalgamation or a scheme of arrangement or similar re-organization & this contract is assigned to any entity (ies) partly or wholly, the contract shall be binding mutatis mutandis upon the successor entities & shall continue to remain valid with respect to obligation of the successor entities.

SEVERABILITY:

It is stated that each paragraph, clause, sub-clause, schedule or annexure of this contract shall be deemed severable & in the event of the unenforceability of any paragraph, clause sub-clause, schedule or the remaining part of the paragraph, clause,

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sub-clause, schedule annexure & rest of the contract shall continue to be in full force & effect.

COUNTERPARTS:

This contract may be executed in one or more counterparts, each of which shall be deemed an original & all of which collectively shall be deemed one of the same instrument.

The successful bidder shall not assign the contract or any part of it without the written consent of PXCHS.

RIGHTS & REMEDIES UNDER THE CONTRACT ONLY FOR THE PARTIES:

This contract is not intended & shall not be construed to confer on any person other than the PXCHS & Successful bidder hereto, any rights/remedies herein.

CORRESPONDENCE

Bidder requiring any Techno-Commercial clarification of the bid documents may contact in writing.

**The Secretary,
Mahavir Universe Phoenix C.H.S. Ltd.
L.B.S. Marg, Bhandup (West),
Mumbai – 400078, Maharashtra**

Name	Contact Number	e-mail ID
Manager,	XXX	pxchs.solar@gmail.com

SECTION-II : EVALUATION CRITERIA

BID EVALUATION

The evaluation process comprises the following four steps:

- Step I - Responsiveness check of Techno Commercial Bid
- Step II - Evaluation of Bidder's fulfillment of Eligibility Criteria as per Clause 3 of Section-I
- Step III - Evaluation of Price Bid
- Step IV - Successful Bidders(s) selection

RESPONSIVENESS CHECK OF TECHNO COMMERCIAL BID

The Techno Commercial Bid submitted by Bidders shall be scrutinized to establish responsiveness to the requirements laid down in the RFS subject to Clause 3. Any of the following may cause the Bid to be considered "Non-responsive", at the sole discretion of PXCHS:

- a. Bids that are incomplete, i.e. not accompanied by any of the applicable formats inter alia covering letter, etc.;
- b. Bid not signed by authorized signatory and /or stamped in the manner indicated in this RFS;
- c. Material inconsistencies in the information /documents submitted by the Bidder, affecting the Eligibility Criteria;
- d. Information not submitted in the formats specified in this RFS;
- e. Bid being conditional in nature;
- f. Bid not received by the Bid Deadline;

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- g. Bid having Conflict of Interest;
- h. Bidder delaying in submission of additional information or clarifications sought by PXCHS as applicable;
- i. Bidder makes any misrepresentation.
Each Bid shall be checked for compliance with the submission requirements set forth in this RFS before the evaluation of Bidder's fulfilment of Eligibility Criteria is taken up. Clause 3 shall be used to check whether each Bidder meets the stipulated requirement.

PRELIMINARY EXAMINATION

PXCHS will examine the Bids to determine whether they are complete, check for any computational errors, whether required sureties have been furnished, whether the documents have been properly signed and stamped and whether the Bids are otherwise in order.

Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total Amount that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total amount shall be corrected. If there is a discrepancy between words and figures, the amount written in words will prevail.

EVALUATION OF BIDDER'S FULFILMENT OF ELIGIBILITY CRITERIA

Evaluation of Bidder's Eligibility will be carried out based on the information furnished by the Bidder as per the prescribed Formats and related documentary evidence in support of meeting the Eligibility Criteria as specified in Clause 3. Non-availability of information and related documentary evidence for the satisfaction of Eligibility Criteria may cause the Bid non-responsive.

EVALUATION OF PRICE BID

The Price Bid submitted by the Bidders shall be scrutinized to ensure conformity with the RFS. Any Bid not meeting any of the requirements of this RFS may cause the Bid to be considered "Non-responsive" at the sole decision of PXCHS.

SUCCESSFUL BIDDER(S) SELECTION

Bids qualifying in Clause 3 shall only be evaluated in this stage.

The Successful Bidder shall acknowledge the LOA and return duplicate copy with signature of the authorized signatory of the Successful Bidder to PXCHS within Three (3) days of issue of Work Order.

If the Successful Bidder, to whom the Work Order has been issued does not fulfil any of the conditions specified in Bid document, PXCHS reserves the right to annul/cancel the award of the Work Order of such Successful Bidder and EMD of the successful bidder will be forfeited.

PXCHS at its own discretion, has the right to reject any or all the Bids without assigning any reason whatsoever, at its sole discretion

OTHER CONDITIONS

Bidder has to obtain all necessary approvals / consents / clearance required for erection, testing, commissioning and O & M of the project including Grid Connectivity. PXCHS shall not have any responsibility in this regard

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REQUIREMENT OF APPROVALS ON MAKES OF THE COMPONENTS:

The modules other components can be procured from any source. However these items should meet the Technical specification and standards mentioned in RFS

PENALTY FOR DELAY IN PROJECT IMPLEMENTATION

The Bidder shall complete the project identification, design, engineering, manufacture, supply, storage, civil work, erection, testing, successful startup and commissioning of net metering system within **90 days** from the date of issue of PO.

If the bidder fails to commission the allocated capacity within 90 days from date of issuance of PO, Penalty will be charged at prevailing MSEB price of 1 power unit per day per kw of plant capacity for first 30 days from the date of default. On further delay, penalty will be charged at prevailing MSEB price of 2 power units per day per kw of plant capacity for next 30 days. Thereafter penalty will be charged at prevailing MSEB price of 3 power units per day per kw of plant capacity basis till successful commencement of net metering system.

Therefore if plant capacity is 100kw, for the first month of delay penalty will be 1 unit/day/kw x 100kw x 30 days x MSEDCL average unit rate to the society.

For the 2nd month of delay penalty will be

2 unit/day/kw x 100kw x 30 days x MSEDCL average unit rate to society.

TIME OF COMPLETION OF ALLOCATED CAPACITY:

Project completion shall be 90 days from the date of issue of PO. Failure of non-compliance of same may lead to forfeiture of PBG and levy of penalty as mentioned above.

DOCUMENT SUBMISSION FOR ISSUE COMMISSIONING/COMPLETION CERTIFICATE :

The project design will be certified by an appointed agency/expert by PXCHS prior to commission of the project. The project will be inspected for quality & performance at any time during commissioning or after the completion of the project.

For the purpose of above clause, the following documents will be deemed to form the completion documents:

1. Checklist for inspection of Roof top SPV power plants
2. Project completion report from successful bidder
3. Project completion/satisfaction certificate from PXCHS

DEDUCTIONS FROM THE CONTRACT PRICE:

All costs, damages or expenses which PXCHS may have paid or incurred, which under the provisions of the Contract, the Successful bidder is liable/will be liable, and will be claimed by the PXCHS.

All such claims shall be billed by the PXCHS to the Contractor within 15 (fifteen) days of the receipt of the payment request and if not paid by the Successful bidder within the said period, PXCHS may then, deduct the amount from any moneys due i.e., Performance Security or becoming due to the contractor or Successful bidder under the contract or may be recovered by actions of law or otherwise, if the Successful bidder fails to satisfy claims of PXCHS.

SECTION-III : TECHNICAL SPECIFICATIONS

The proposed project shall be commissioned as per the technical specifications given below. PXCHS's decision will be final on the bidder.

DEFINITION

A Grid Tied Solar Rooftop Photo Voltaic (SPV) power plant consists of SPV array, Elevated / Module Mounting Structure, Inverter, Power Conditioning units (PCU) consisting of Maximum Power Point Tracker (MPPT), Controls & Protection device, interconnect cables, Junction boxes, Distribution boxes and switches. PV Array is mounted on a suitable structure to be constructed by bidder. 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 plant 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 net metering system shall consist of following equipments/components.

- Solar PV modules consisting of required number of **PolyCrystalline** PV cells with cell efficiencies $\geq 16\%$ and should be PID free.
- Grid interactive Power Conditioning Unit with WiFi and Remote Monitoring System including permanent web portal
- Mounting structures
- Junction Boxes.
- Earthing and lightning protections.
- IR/UV protected PVC Cables, pipes and accessories
- Cable Trays for proper untangled routing of cables

SOLAR PHOTOVOLTAIC MODULES:

The PV modules used should be made in India. Make of the supplier should be provided by the Bidder.

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-1 - requirements for construction & Part 2 – requirements for testing, for safety qualification or equivalent IS.

- a) The total solar PV array capacity should not be less than indicated capacity (kWp) and should comprise of modules of minimum **315 Wp** and above wattage. Module capacity less than minimum **315** watts shall not be accepted
- b) Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided.

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- c) The module frame shall be made of corrosion resistant materials, preferably having anodized aluminum.
- d) The bidder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power in his bid. PXCHS shall allow only minor changes at the time of execution.
- e) Other general requirement for the PV modules and subsystems shall be the Following:
 - I. The rated output power of any supplied module shall have tolerance within +/- 3%.
 - II. The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary by more than 2 (two) per cent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
 - III. The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-pass diode. The box shall have hinged, weather proof lid with captive screws and cable gland entry points or may be of sealed type and IP67 rated.
- f) All panels should be PID free.

Warranties:

- a) Material Warranty:
 - i. Material Warranty is defined as: 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 ten (10) years from the date of sale.
 - ii. Defects and/or failures due to manufacturing
 - iii. Defects and/or failures due to quality of materials
 - iv. Non-conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the manufacturer will repair or replace the solar module(s), at PXCHS's sole option.
- b) Performance Warranty:
 - i. 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.

ARRAY STRUCTURE

- a) MS I Beam / C Beam mounting structures may be used for mounting the modules/ panels/arrays as specified in Annexure 3. 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 where a PV system is proposed to be installed (like Mumbai-wind speed of 150 Km/ hour). It must be ensured that the design has been certified by a

recognized Lab / Institution / statutory authorities in this regard and submit wind loading calculation sheet to PXCHS. Suitable fastening arrangement such as grouting and clamping 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 .
- d) Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. Aluminium structures also can be used which can withstand the wind speed of respective wind zone. Necessary protection towards rusting need to be provided either by coating or anodization.
- e) The fasteners used should be made up of stainless steel. The structures shall be designed to allow easy replacement of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels
- f) Regarding civil structures the bidder need to take care of the load bearing capacity of the roof and need arrange suitable structures based on the quality of roof.
- g) The total load of the structure (when installed with PV modules) on the terrace should be certified by structural auditor.
- h) The clearance of the structure from the roof level should be as per local body approvals and guidelines.

JUNCTION BOXES (JBs)

- a) The junction boxes are to be provided in the PV array for termination of connecting cables. 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) All fuses shall have DIN rail mountable fuse holders and shall be housed in thermoplastic IP 65 enclosures with transparent covers.

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/RCCB/ELCB shall be provided for controlling the DC power output to the PCU along with necessary surge arrestors.

AC DISTRIBUTION PANEL BOARD:

- c) AC Distribution Panel Board (DPB) shall control the AC power from PCU/ inverter, and should have necessary surge arrestors. Interconnection from ACDB to mains at LT Bus bar while in grid tied mode.
- d) All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS60947 part I, II and III.
- e) The changeover switches, cabling work should be undertaken by the bidder as part of the project.
- f) 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

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- g) The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.
- h) All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.
- i) Should conform to Indian Electricity Act and rules (till last amendment).
- j) All the 415 AC or 230 volts devices / equipment like bus support insulators, circuit breakers, SPDs, VTs etc., mounted inside the switchgear shall be suitable for continuous operation and satisfactory performance under the following supply conditions

Variation in supply VOLTAGE	+/- 10 %
Variation in supply FREQUENCY	+/- 1 Hz

PCU/ Inverter:

As SPV array produce direct current electricity, it is necessary to convert this direct current into alternating current and adjust the voltage levels to match the grid voltage. Conversion shall be achieved using an electronic Inverter and the associated control and protection devices. All these components of the system are termed the "Power Conditioning Unit (PCU)". In addition, the PCU shall also house MPPT (Maximum Power Point Tracker), an interface between Solar PV array & the Inverter, to the power conditioning unit/inverter should also be DG set interactive. If necessary Inverter output should be compatible with the grid frequency. Typical technical features of the inverter shall be as follows:

Switching devices	IGBT/MOSFET
Control	Microprocessor Based
Nominal AC output voltage and frequency	415V, 3 Phase, 50 Hz
Output frequency	50 z
Grid Frequency Synchronization range	+ 1 Hz or less
Ambient temperature considered	-10°C to 80°C
Humidity	95 % Non-condensing
Protection of Enclosure	IP20 (Minimum) for indoor IP67 (Minimum) for outdoor
Grid Frequency Tolerance	+1 or less
Grid Voltage Tolerance	- 20% & + 15 %
No-load losses	Less than 1% of rated power
Inverter efficiency (Min)	>95%
THD	<3%
PF	>0.99

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

INTEGRATION OF PV POWER WITH GRID:

The output power from SPV would be fed to the inverters which converts DC produced by SPV array to AC and feeds it into the main electricity grid after synchronization. In case of grid failure, or low or high voltage, solar PV system shall be out of synchronization and shall be disconnected from the grid.

PROTECTIONS

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

LIGHTNING PROTECTION

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

EARTHING PROTECTION

- Each array structure of the PV yard should be grounded/ earthed properly as per IS:3043-1987. In addition the lightning arrester/masts should also be earthed inside the array field. Earth Resistance shall be tested in presence of the representative

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of PXCHS 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. It shall be ensured that all the earthing points are bonded together to make them at the same potential.

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 “Islands.” Powered Islands present a risk to workers who may expect the area to be unpowered, and they may also damage grid-tied equipment. The Rooftop PV system shall be equipped with islanding protection. In addition to disconnection from the grid (due to islanding protection) disconnection due to under and over voltage conditions shall also be provided.
- A manual disconnect 4-pole isolation switch beside automatic disconnection to grid would have to be provided at utility end to isolate the grid connection by the utility personnel to carry out any maintenance. This switch shall be locked by the utility personnel.

CABLES

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

- i. Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards
- ii. Temp. Range: -10°C to $+80^{\circ}\text{C}$.
- iii. Voltage rating 660/1000V
- iv. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation
- v. Flexible
- vi. Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum (2%)

TOOLS AND SPARES :

- a) The vendor should maintain the requisite levels of spares and tools at site or at local office to meet the system up-time performance criteria. List and quote for minimum spares to be kept at site as a separate line item.

DRAWINGS & MANUALS:

- i. The vendor to provide the engineering drawings (Module mounting structure), electrical drawings (DC and AC SLD), plant layout before the implementation starts for the certification by our appointed consultant.
- ii. Post commissioning, two sets of fully updated final drawings, installation, maintenance and operational manuals should be provided. Provide soft copies where possible in PDF as well dwg/dxf format where applicable.

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- iii. Bidders shall provide complete technical data sheets for each equipment giving details of the specifications along with make/makes in their bid along with basic design of the power plant and power evacuation, synchronization along with protection equipment.
- iv. Approved ISI and reputed makes for equipment be used.
- v. For complete electro-mechanical works, bidders shall supply complete design, details and drawings for approval to PXCHS / owners before progressing with the installation work

PLANNING AND DESIGNING:

- i. The bidder should carry out Shadow Analysis at the site and accordingly design strings & arrays layout considering optimal usage of space, material and labor. The bidder should submit the array layout drawings along with Shadow Analysis Report to PXCHS
- ii. PXCHS reserves the right to modify the landscaping design, Layout and specification of sub-systems and components at any stage as per local site conditions/requirements.
- iii. The bidder shall submit preliminary drawing for approval to PXCHS and amend based on recommendation, if any. The bidder shall submit 3 sets and soft copy in CD of final drawing for formal approval to proceed with construction work.

DRAWINGS TO BE FURNISHED BY BIDDER AFTER AWARD OF CONTRACT

The Contractor shall furnish the following drawings Award/Intent and obtain approval

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

SAFETY MEASURES:

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

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SECTION-IV : PRICE BID

RFS No: Phoenix/TENDER/Solar/OCT2020 dated XXX Oct 2020

Date:

S.No	Description	Bid Capacity in KWp (80 KWp min) (A)	Unit Project Cost for Scope of Work as per bid (Rs./KWp) (B)	Total Project Cost for Scope of work as per bid (Rs.) **
	a. Design, Manufacturing, Supply, Erection, Testing & Commissioning including trial (The actual capacity may vary +/- 10kwp depending upon site conditions) b. Erection of elevated MS Structure for installation of maximum capacity c. Operation, & maintenance for a period of 2 years including Power Evacuation System and cost of replacement of all the parts, covered under Guarantee period for a period of 2 years from the date of commissioning of Roof-top Solar System as per Annexure 1 & 2			
	Yearly AMC Cost – Year 3 to Year 6, as per annexure 1 & 2			
	Guaranteed Yearly KWh. Penalty in Rs. Per KWh in case of guarantee not being achieved			
	Penalty for non-availability, beyond 4 days in Rs. Per KWh			

**** Prices Quoted to be inclusive of all taxes**

Signature of the Authorised Signatory :.....

Place:

Name.....

Business Address:

Designation:.....

(Common Seal).....

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SECTION -V : FORMATS FOR SUBMITTING RFS

Covering Letter (On the Letter Head of the Bidding Company)

Ref.No. _____

Date:

From: _____(Insert name and address of Bidding Company)

To

The Secretary

Mahavir Universe Phoenix CHS Society,
LBS Marg, Bhandup (W), Mumbai 400078

Sub: Bid for “Implementation of Grid connected Roof Top Solar PV System Dear

Sir,

1. We, the undersigned....[insert name of the ‘Bidder’] having read, examined and understood in detail the RFS Document for Implementation of Grid connected Roof Top Solar PV System Scheme hereby submit our Bid comprising of Price Bid and Techno Commercial Bid. We confirm that neither we nor any of our Parent Company / Affiliate/Ultimate Parent Company has submitted Bid other than this Bid directly or indirectly in response to the aforesaid RFS.
2. We give our unconditional acceptance to the RFS, dated XXX, Oct 2020 and RFS Documents attached thereto, issued by C.H.S Limited, as amended. As a token of our acceptance to the RFS Documents, the same have been initialed by us and enclosed to the Bid. We shall ensure that we execute such RFS Documents as per the provisions of the RFS and provisions of such RFS Documents shall be binding on us.
3. We have bid for the capacity of _____KW with scheme as ___ X ___KW.
4. We have submitted our Price Bid strictly as per Section IV of this RFS, without any deviations, conditions and without mentioning any assumptions or notes for the Price Bid in the said format(s).
5. **Acceptance** : We hereby unconditionally and irrevocably agree and accept that the decision made by C.H.S Limited in respect of any matter regarding or arising out of the RFS shall be binding on us. We hereby expressly waive any and all claims in respect of Bid process. We confirm that there are no litigations or disputes against us, which materially affect our ability to fulfil our obligations with regard to execution of projects of capacity offered by us.

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6. **Familiarity with Relevant Indian Laws & Regulations** : We confirm that we have studied the provisions of the relevant Indian laws and regulations as required to enable us to submit this Bid and execute the RFS Documents, in the event of our selection as Successful Bidder. We further undertake and agree that all such factors as mentioned in RFS have been fully examined and considered while submitting the Bid.

7. **Contact Person** : Details of the contact person are furnished as under:

Name :
Designation :
Phone Nos. :
E-mail address :

It is confirmed that our Bid is consistent with all the requirements of submission as stated in the RFS. The information submitted in our Bid is complete, strictly as per the requirements stipulated in the RFS and is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our Bid. We confirm that all the terms and conditions of our Bid are valid for acceptance for a period of 60 days from the Bid deadline. We confirm that we have not taken any deviation so as to be deemed non-responsive.

Dated the _____ day of _____, 2020.

Thanking you,

Yours faithfully,

Name, Designation and Signature of Authorized Person

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GENERAL PARTICULARS OF THE BIDDER

1	Name of the Company	
2	Registered Office Address	
3	E-mail	
4	Web site	
5	Authorized Contact Person(s) Name, designation Address and Mobile Phone No. E-mail address/ Fax No.	
6	Year of Incorporation	
7	Has the bidder/Company ever been debarred By any Govt. Dept./Undertaking.	
8	Reference of any document attached by the Bidder other than specified in the RFS.	
9	GST registration	
10	Tax Registration (PAN/TAN)	
11	PAN number (enclosed a copy)	
12	Bank and Account Details	

(Signature of Authorized Signatory)

With Stamp

Mahavir Universe Phoenix C.H.S Ltd.

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Annexure – 1 : 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

1. The panels are cleaned at least once every fifteen days.
2. Any bird droppings or spots should be cleaned immediately.
3. 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.
4. Do not spray water on the panel if the panel glass is cracked or the back side is perforated.
5. Wipe water from module as soon as possible.
6. Use proper safety belts while cleaning modules at inclined roofs etc.
7. The modules should not be cleaned when they are excessively hot. Early morning is particularly good time for module cleaning.
8. 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.
9. Ensure that the module terminal connections are not exposed while cleaning; this poses a risk of electric shock.
10. Never use panels for any unintended use, e. g. drying clothes, chips etc.

2. CABLES AND CONNECTION BOXES

11. Check the connections for corrosion and tightness.
12. Check the connection box to make sure that the wires are tight, and the water seals are not damaged.
13. There should be no vermin inside the box.
14. Check the cable insulating sheath for cracks, breaks or burns. If the insulation is damaged, replace the wire.
15. If the wire is outside the building, use wire with weather-resistant insulation.

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16. Make sure that the wire is clamped properly and that it should not rub against any sharp edges or corners.
17. If some wire needs to be changed, make sure it is of proper rating and type.

3. INVERTER

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

4. SHUTTING DOWN THE SYSTEM

23. Disconnect system from all power sources in accordance with instructions for all other components used in the system.
24. To the extent possible, system shutdown will not be done during day time or peak generation.

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Annexure – 2 Specifications with regards to Electrical Design

Sl No.	Description	Make
1.	Panels	High efficiency panels for max generation. Premium manufacturers with more than 10 years of experience and excellent support infrastructure.
2.	Inverter	Inverters with > 1 GW of installations. One of the highest efficiency inverters globally
3.	Structure for Module	Vertical, Rafter, Purlin, Base as per design requirements. Structural Stability, and Wind safety certificate required. Structure to be hot dip galvanized (80 microns) or equivalent as recommended by consultant. Height of structure to be recommended by Bidder to get maximum productivity
4.	DCDB [DC fuse, 10A MCB and SPD] IP65 BOX	MCB Schneider/C&S/ L & T /ABB/GE/ Siemens equivalent, SPD Dehn / OBO.
5.	ACDB [10A MCB and SPD] IP65 BOX	MCB Schneider/C&S/ L & T /ABB/GE/ Siemens equivalent, SPD Dehn / OBO.
6.	MC4 Connectors	Geesys/Standard
7.	Lightening arrestors (Five spike type) and control room equipment's earthing with GI strip 25X3MM	Standard Min. 4 Nos.
8.	1C X 4 Sq. mm single core UV Protected DC solar Cables for Module to Inverter	Poly cab/ KEI/ Finolex
9.	Copper AC Cables for connecting the Inverter to ACDB	Poly cab/ KEI/ Finolex
10.	Copper AC Cables for connecting the ACDB to client panel	Poly cab/ KEI/ Finolex
11.	1 C X 2.5 Sq. mm Cu flexible Earthing cables for inverters and module earthing	Poly cab/ Finolex/ KEI
12.	RS 485 CAT 5 Communication Cable	AREVA/ Universal Cables/ Aksh fiber/ electrolytes
13.	Tin Plated copper Solar DC cable from roof to DCDB, DCDB to Inverter, Inverter to ACDB, and ACDB to Client panel	Lapp, Leoni
14.	Cable Tie SS304	Standard
15.	Danger boards, aluminium tag for cables, required instruction board at site	Standard
16.	Canopy (If required)	Standard
17.	Energy Monitoring	TRACK - daily, monthly, yearly production. Get alerts & notifications about maintenance, outage etc.