SECTION-I

BID INVITATION

Brief Description of Tender Process

- The Agriculture Development Officer , Zilla Parishad Ratnagiri, invites eligible bidder to submit a tender in accordance with the provisions of this Tender Document. In this Tender Document, the term "Bidder", which expression shall, unless repugnant to the context, include all parties who have submitted tender in response to this Tender Document within the stipulated time frame for submission.
- The Bidders shall submit the bids in two parts by following e-tendering process described in tender document. First part comprises of the technical bid and the second part comprises of the financial bid in accordance with this Tender Document.
- In terms of the Tender Document, a Bidder will be required to deposit **non- refundable Tender document fee** and **refundable Earnest Money Deposit (EMD)** along with this tender.
- we will open the technical bid of the Bidder, by e -tendering process. The financial bid will be opened of those bidders which will be qualified in the technical bid.

Bidding Information

1	Tender Reference No	No.RZP/KRUSHI/B-1/ 100/2020
2	Tender can be downloaded	Between 22/01/2021 to 02/02/2021, 13:00 Hrs
3	Estimated Cost 60kWp (Cumulative Capacity) Grid Connected SPV Power Plant	28,80,000/- (The above estimated costs are inclusive of total system cost and its installation commissioning, transportation, insurance, five year CMC, and applicable fees and taxes.)
4	Tender document fee	Rs. 4200/- (Rs. Four Thousand Two Hundred only) Non-refundable & Non Transferable; to be submitted online
5	Earnest Money Deposit (EMD)	Rs. 70000/- (Rs. Seventy Thousand Only) Non Transferable; to be submitted online
6	Date & Time of Pre Bid Meeting	All participants are requested to send their queries, if any, on or before – 01/02/2021 00.00 Hrs *adortn@rediffmail.com* Pre bid meeting – 29/01/2021 , 13.00 Hrs at Agriculture Development Officer chember, Zilla Parishad Ratnagiri
7	Last date & Time for submission of Bids	02/02/2021 13.00 Hrs
8	Date & Time of opening of Technical Bid	03/02/2021 14.00Hrs
9	Security Deposit	86,400/-
10	Address for communication and Venue for Tender opening	Dr.Babasaheb Ambedkar Bhavan 1 st floar, Agriculture Department, Zilla PArishad Ratnagiri 415612 Telephone no. -02352-22462, 223068. Email Id - adortn@rediffmail.com

- The date & time of opening of Price Bid will be announced later

- If any technical difficulties arise while filling up e-tender, please contact Agriculture Development Officer Zilla Parishad Ratnagiri
- It is compulsory to pay tender document fee, EMD through e-payment gateway at https://mahatenders.gov.in by online only.
- Eligible bidders can upload the Tenders through Maha-e-tender portal of GoM : https://mahatenders.gov.in

SECTION-II

INFORMATION AND INSTRUCTION TO BIDDERS

The Agriculture Development Officer, Zilla Parishad Ratnagiri, invites e-tender from eligible bidders for "works" include Design, Manufacture, Supply, Installation, Testing and Commissioning with five years Comprehensive Maintenance of Grid Connected Solar Photo Voltaic (SPV) Power Plant at **Rural Water Supply Scheme at Kuwarbav**, Taluka Ratnagiri aggregating total 60kWp (Distributed Capacity) under / with net metering at **Rural Water Supply Scheme at Kuwarbav**. (Herein after referred to as the contract of works) and as described in the tender document on 'Turnkey Contracts ' under Tender No: No.RZP/KRUSHI/B-1/ /2020.

1. Scope of Works

• Design, Manufacture, Supply, Installation, Testing and Commissioning with five years comprehensive maintenance of total 60kWp () under / with net metering at **Rural Water Supply Scheme , Kuwarbav**, Taluka Ratnagiri on 'Turnkey Contract' as described in the tender document.

• Free replacement of defective components of systems within Comprehensive Maintenance period (CMC) of 5 years after commissioning of the projects at all locations for efficient running of the system.

• Detailed planning for smooth execution of projects at location.

• Selected Bidder shall be bound to operate and maintain the system as per the rules, regulations and modalities as prescribed by MNRE and MEDA for the effective functioning of the projects.

• **Time Period** : The successful Bidder will be required to **complete the work within 30 Days from the date of issue of work order**.

• Bids shall complete and cover all works described in the tender. However if any item of work is not mentioned in tender but required for completing the project. The same shall be deemed to be included in bidder's scope.

• Bidder shall obtain the statutory permissions from statutory bodies wherever required for execution of works.

• Bidder shall apply to MSEDCL, Ratnagiri for seeking net meter / load extension immediately after issue of order and ensure timely completion of project.

• Partial bids or bids which do not cover the entire scope of the project will be treated as incomplete and not responsive to the terms and conditions of tender are liable to be rejected.

2. Eligibility

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

I. Shall manufacture/supply the material (module & inverter) only as per the standards mention in tender document . They should provide valid registration certificate issued by MNRE and IEC certificate of SPV Module & Inverter and test report from authorized test centre of MNRE, GoI.

II. Shall have experience for single installation for cumulative capacity of **50kWp** in which at least one project shall be of **25kW** capacity grid connected SPV system; installed, commissioned & working successfully for at least one year. Demonstration for such installations shall be allowed during pre -bid meeting (individual time slot of max 10 min will be provided). Satisfactory completion certificate along with contact details of concern authority at installation (Beneficiary/Client) should be submitted. Representative of MEDA, Divisional office Ratnagiri may visit such installation. Bidders to arrange necessary permissions.

III. Overall Average Annual Turnover of the Company/Firm/ Corporation in the last two financial years should be at least **Rs 50 Lac. (Rupees Fifty Lac only)** (This must be the individual Company's turnover and not that of any group of Companies. A summarized sheet of turnover for last two years with average turnover certified by registered CA should be compulsorily enclosed)

3. Standards / Certificates

• The material/ equipments /components supplied and works executed under this contract shall be confirmed to the standards mentioned in the technical specification & Annexure- A. Where no standards are mentioned, the latest version of Indian Standard Institution or Bureau of Indian Specification shall be considered.

• The Bidder shall submit all the valid test certificates and reports of the system components following the latest MNRE Guidelines and the same components shall be supplied for which the test reports/ certificates are submitted.

4. Instructions

• Bidder shall upload his information, experience certificates, test reports and other such relevant document's specified in the list of other important documents on the Tender Portal *https://mahatenders.gov.in* .

The bidder should visit the site & perform technical survey along with concern persons of Office of ADO ZP Ratnagiri & BDO Panchayat Samiti Ratnagiri, and upload the details of the survey of site on above portal as per the Format - H during for filling of tender.

• The technical proposals confirming to eligibility criteria and found satisfactory will be taken up for detailed technical evaluation.

A technical evaluation committee shall evaluate the Bids submitted by bidders for detailed scrutiny. During evaluation of the technical bids, tenderer may at its discretion ask the bidders for clarification of their bid.

- In case bidder does not fulfill the technical bid the financial bid shall not be opened & he shall be disqualified from further bidding process.
- Price Proposals of bidders qualifying above conditions shall be subsequently opened. The time and date of the opening of the Price bid shall be intimated on web site by tenderer.
- The price bid will be opened in presence of the all technically qualified bidders.
- Bids submitted without EMD will be rejected. Bidder would need to upload the required documents through electronic mode only.
- **The Bidder shall upload copies of**

1.GST registration Certificate
2. PAN Card.
3. Income Tax Returns of previous three assessment years.

For any Clarification/online support please contact at mail id *adortn@rediffmail.com* ,

- Agriculture Development Officer, Z P Ratnagiri reserves the right
- To reject or accept any or all tenders without assigning any reasons thereof.
- The work order is not transferable. Subletting is not allowed.
- Tenderer will not entertain any claim at any stage of successful bidder on the plea that the bidder was not having sufficiently acquainted himself to all the site conditions

5. Cost of Bidding

The bidder shall bear all costs associated with the preparation and submission of bid and tenderer will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

8. Documents Comprising to the tender

The tender prepared by the Bidder shall be uploaded in Two parts viz. Technical Bid and Financial Bid comprising the following components.

Part I - Technical Proposal:

Bidder shall submit relevant certificates to fulfill the eligibility criteria prescribed in the tender document along with following documents/information.

1 Copy of receipt for tender fee
2 Copy of receipt for EMD / Valid exemption certificate issued by competent Govt. authority
3 Duly stamped and signed tender document (Tender Document)
4 Firm registration certificate with ROC.
5 Copy of PAN
6 Copy of GST registration
7 Self Certification of No Barr/non failure/blacklisted (Refer Format - B)

8 Banker's details of bidder (Refer Format - C)
9 Bidder's Information Sheet (Refer Format - D)
10 Details of set-up for after sales service (Refer Format - E)
11 Financial credentials of bidder (Refer Format- F), along with scanned copy of IT returns for last two financial years.
12 Experience for installation and commissioning of SPV power plants/ list of projects. (Refer Format - G). Along with scanned copies of work / purchase orders along with project completion report duly certified by beneficiary received for completed projects.
13 Site visit report (Refer Format - H) for each site.
14 Details of proposed / offered system (Refer Format - I)
15 Details for out-put / power generation – assumed & assured from proposed / offered system (Refer Format - J)

Standards as per guidelines issued by MNRE. And details of Guaranty & Warranty.

The Bidder is expected to verify all instructions, forms, terms and specifications in the Tender Document. Failure to furnish all information required in the tender document will be at the Bidder's risk and may result in rejection of the bid.

Part II - Financial bid

Financial Bid shall contain:

• The bidder should quote the price as against total tender estimate as shown in the tender document. The price quoted in the bid will be inclusive of all taxes, duties, insurance and all incidental charges for successful design, supply, installation, commissioning along with comprehensive maintenance for five years of Solar PV Power Plant.
• Prices shall be quoted in Indian Rupees only.
• In no circumstances, escalation in the prices will be entertained.
• Financial Bid uploaded with an adjustable price quotation will be treated as non responsive and will be rejected.
• Any Bid not in accordance with above clauses of this Section will be rejected.

8. EARNEST MONEY DEPOSIT (EMD), SECURITY DEPOSIT (SD) & FORFEITING OF EMD : A) EARNEST MONEY DEPOSIT:

•The Earnest Money Deposit of Rs. 70,000/- should be paid online through respective portal. Tender without Earnest Money Deposit will be out rightly rejected. No interest shall be payable on the amount of Earnest Money. EMD shall be returned to unsuccessful Bidders after acceptance of work order by successful Bidder and EMD of successful Bidder shall be returned after submission of security deposit.
• Bidders having exemption under MSME shall necessarily submit self attested copy of valid exemption certificate; otherwise tender shall be out rightly rejected. In above event, L1 Bidder is to submit original copy(s) of such certificate/registration for review / verification, before issuing the LOA. In absence of original certificate /registration, strict actions will be taken against such Bidder and EMD amount will be recovered.

B) FORFEITING OF EMD:

The EMD submitted by the Bidder shall be forfeited if:
1. The Bidder withdraws his tender before finalization of work order.
2. The Bidder does not accept work order.
3. The Bidder violates any of the terms and conditions of the tender.
4. The Bidder fails to deposit requisite Security deposit.
5. The Bidder fails / refuses to execute the contract. In this case, Tenderer shall have full right to claim damages thereof in addition to the forfeiture of EMD.

C) SECURITY DEPOSIT:

1. The Bidder shall furnish security deposit at 3% of the total contract value during issue of work order by way of demand draft from nationalized bank in favour of tenderer payable at Ratnagiri Or by Bank Guarantee of Nationalised Bank.
2. Failure to comply with the terms of security deposit shall result into cancellation of work order without any further reference to the Bidder and the EMD shall be forfeited.

3. The security deposit shall be liable to be forfeited wholly or partly at the sole discretion of the Tenderer, if the Bidder either fails to execute the work of above projects or fails to fulfill the contractual obligations or fails to settle in full his dues to Tenderer.

4. In case of premature termination of the contract, the security deposit will be forfeited and the Tenderer will be at liberty to recover the losses suffered by it & if additional cost is to be paid, the same shall be recovered from the Bidder.

5. The Tenderer is empowered to re-cover from the security deposit for any sum due or any other sum that may be fixed by the tenderer as being the amount
or loss or losses or damages suffered by it due to delay in performance and /or non - performance and / or partial performance of any of the conditions of the contract and/or non -performance of guarantee obligations.

6. The security deposit shall be released to the Bidder only after contract is completed to the satisfaction of the Tenderer.

9. PRICE VARIATION & ADDITIONAL SECURITY DEPOSIT (ASD):

The Project cost 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 by Tenderer.
In event bidder offers price less than 80% of estimated cost indicated in this tender document; in such case, the tender evaluation committee will assess the authenticity of rate quoted by the bidder and ensure that the quality of work will not get compromised & take decision accordingly. If the committee takes decision to select such bidder from received offer then, bidder must pay additional security deposit (ASD) amount of 10% of difference amount (i.e. estimated cost - offered price) during submission of bid. However if tender evaluation committee disagree with the rate quoted in this context, the tender will be rejected & committee will select the L2 bidder for this work.

10. JURISDICTION:

In case of any dispute, in the documentation and during implementation, commissioning, completion and CMC period, all the matter will be resolve under Ratnagiri Jurisdiction only.

11. Period of Validity of Bid

- Bids shall remain valid for 90 days after the date of opening of Financial Bid.
- In exceptional circumstances, Tenderer may solicit the Bidder's consent to extend the period of validity. The request and the responses thereto shall be made in writing . The EMD provided shall also be suitably extended. However Bidder granting the request will not be required nor permitted to modify its bid.

12. Mode of submission of bids

• The Bids shall be submitted electronically in the e-tender platform only.

• Bids sent by any other mode like in person, post, Telex or Fax or e-mail will be rejected.

• Tenderer may at its discretion ask the Bidder to submit the hard copy of any of the document/information submitted on e-tender platform.

13. Deadline for Submission of Bids

• Bids must be uploaded by the bidder through e-tender process not later than the time and date specified in the invitation for Bids.
•The Tenderer may, at the discretion, extend this deadline for submission of bids by issuing an addendum, in which case all rights and obligations of Tenderer and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended

14. Clarification of Bids

During evaluation of Bids, tenderer may, at its discretion, ask the Bidder for a clarification of its bid. The request for clarification and the response shall be in writing and no change in prices or substances of the Bid shall be sought, offered or permitted.

15. Pre Bid Meeting:
Pre bid meeting shall be called at Agriculture Development Officer, Zilla parishad Ratnagiri to clarify doubts, if any of the bidders at date & time specified in the tender floated on site *https://mahatenders.gov.in* before submission of final tender document.

16. Preliminary Examination
• tenderer will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.

• Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If there is a discrepancy between words and figures, the lower of the two will prevail. If the Bidder does not accept the correction of errors, its bid will be rejected.

• 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 and 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 tenderer
• 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.

17. Acceptance or Rejection of Bids

• tenderer reserves the right to accept or reject any bid or all the bids and to annul the bidding process and reject all bids at any time prior to award of contract, without thereby incurring any liability or any obligation to inform the affected bidder or bidders in this matter.
• Any Bid with incomplete information is liable for rejection.
• For each category of pre -qualification criteria, the documentary evidence is to be produced duly attested by the authorized representative of the bidder and serially numbered. If the documentary proof is not submitted for any/all criteria the Bid is liable for rejection.

• If any information given by the bidder is found to be false/ fictitious, the Bidder will be debarred for 3 years from participating in any other tenders of Tenderer and will be black listed.

18. Criteria for Bids evaluation Step 1:

Test of Responsiveness

• Prior to evaluation of Bids, Tenderer shall determine whether each Bid is responsive to the requirements of the tender document. A Bid shall be considered responsive only if all documents as outlined in the tender
document for two stage bid process are submitted as per the pre-defined format.
•Tenderer reserves the right to reject any Bid which is non -responsive and no request for alteration, modification, substitution or withdrawal shall be entertained by the tenderer in respect of such Bid.

Step 2: Bid Evaluation

Bid evaluation will be carried out considering the information furnished by Bidders as per the Tender documents. Based on technical/ qualifying criteria preferred bidders will be short listed.

Technical Evaluation

• Only Technical Proposals conforming to eligibility criteria and found to be responsive will be taken up for detailed technical evaluation. A technical/ tender committee shall evaluate the Bids submitted by bidders for a detailed scrutiny. During evaluation of Bids, tenderer, may, at its discretion, ask the bidders for clarification of their Proposals.

Financial Evaluation

The price bids of the eligible bidders will then be evaluated in the manner provided below;

• At the outset, the price bids of all the Bidders who are technically qualified in technical evaluation shall be opened in the presence of the Bidders Representatives. Presence of the Bidders Representatives is essential. No claim / further clarification will be entertained, to the Bidder in case the Representative of bidder fails to attend this meeting.

• The bidder's names, the Bid Prices, total amount of each bid and other details as Tenderer may consider appropriate, will be announced and recorded by Tenderer at the opening. The bidder's authorized representatives will be required to sign this record.

• Bidder that has quoted the lowest price (inclusive of all the taxes/duties) without breach of any technical specification as per terms and condition of tender shall be declared as the preferred Bidder.

• The work orders shall be issued to the successful bidder who ever qualifies in the complete process as mentioned above.

19. Award Criteria and Award of Contract

Tenderer will award the contract to the successful bidder whose bid has been determined to be substantially responsive and has been determined as the lowest evaluated bid as per the criteria mentioned above, and submission of Performance Bank Guarantee of 3% of total project cost from any Nationalized Bank valid for period of 5 years. provided further that the bidder is determined to be qualified to perform the contract satisfactorily

20. Corrupt or Fraudulent Practices

Tenderer requires that Bidders shall observe the highest standard of ethics during the execution of contracts. In pursuance of this policy, Tenderer 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 procurement process or in contract execution; and

•"fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Government, and includes collusive practice among Bidders (prior to or after tender submission) designed to establish tender prices at artificial non-competitive levels and to deprive the Government of the benefits of free and open competition;

• will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

• will declare a firm ineligible for a period of 3 years , if it at any time it determines that the firm has engaged in corrupt or fraudulent practices in competing for awarded work at Government financed contract , or in executing, a contract.

21. Terms of Payment:

a. 60% of the total cost will be released after supply, installation & successful commissioning of the systems duly certified by Bidder, Officer of MEDA & authorized

person of Beneficiary along with submission of Insurance policy (cover theft/burglary/ fire/damage) documents effective from date of commissioning for CMC period.
b. 20% of the total cost shall be released on receipt of one month successful performance report generated automatically through Remote Monitoring System.*
c. 20% of the total cost shall be released on submission of next two month successful performance report in prescribed format generated automatically through Remote real time Monitoring System as well as manually which should be duly certified by Officer of MEDA, authorized person of Beneficiary.. **

***(Payment will be made after receiving of remaining grant from DPC)**

Deduction:-

i. The TDS at the source will be deducted as per the Govt. rule and regulations.

ii. Tenderer will issue necessary certificates of TDS deduction

iii. 'C' / 'D' form will not issued by Tenderer.

iv. Note: For the labour welfare Tenderer. will deduct 1% of contract value as labour welfare cess from payment towards successful bidder.

SECTION – III

GENERAL CONDITIONS OF CONTRACT (GCC)

1) General Terms and Conditions:

The following are the General Terms and Conditions of Contract for Supply , installation and commissioning of SPV Power Plant, as per the specifications given in the document.

a) Bidder shall be responsible for any damage occurred, if any, to other installations of the existing office building / establishment/area at site during the course of work.

b) The Bidder should provide appropriate tools and equipment's to the workmen and ensure that those are in proper working condition and the workmen use the appropriate tools and take precaution " PLEASE NOTE THAT ANY ACCIDENT TO THE WORK MEN / PUBLIC / ANIMALS / PROPERTY BOTH MOVABLE AND IMMOVABLE SHALL BE ENTIRE AND SOLE RESPONSIBILITY OF THE BIDDER AND ANY PROCEEDING ARRISING OUT OF THE SAME SHALL BE AT THE BIDDER'S RISK AND COST, Tenderer OR ITS EMPLOYEES WILL NOT BE RESPONSIBLE FOR ANY SUCH INCIDENT "

c) Bidder should provide necessary manufacture's test certificates for materials being used for the work. Power curve of all the panels erected by manufacturers shall be provided to the Tenderer.

d) The selected Bidder is bound to work on the guidelines provided by Tenderer from time to time. Guidelines if issued in future by Tenderer, the changes proposed will also be applicable without augmentation in project cost.

e) The Bidder shall carry out the work strictly according to the specifications as per given in Section-IV and complete the work within stipulated time.

f) It is the responsibility of Bidder to submit the reports for systems installed & commissioned and certificates for undertaking the responsibility of maintenance of the systems to Tenderer with a copy to Beneficiary. Bidder shall also impart training to the user for regular Operation & Maintenance of the system and certificate in this respect should be submitted.

g) Bidders should give Guarantee against any manufacturing defects from the date of commissioning up to CMC period. or any manufacturing defects, bidder shall replace defective parts at free of cost during the CMC period and shall keep the system functional.

h) Tenderer/MEDA officials will do inspection as and when necessary, during the execution of work and thereafter subsequent to installation and commissioning of the work for the purpose of issuing final completion certificate.

i) In the event of any discrepancy observed in specifications, the specifications given by Tenderer will be final. In the event of dispute arising any time, related to this work and document, decision of the Agriculture Development Officer shall be final.

j) Tenderer at its discretion may visit supplier's factory for testing / inspection at any time during the period of supply and installation of the systems.

k) Tenderer will not pay any interest on any amount, due to the Bidders

l) During the inspection, if any deviations in Technical Specifications are observed, Tenderer reserves right to test any solar module / system at any authorized test centre of MNRE/MEDA. Bidder shall provide the facilities for getting the sample tested & the supplier shall bear the cost for the same.

m) If the supplier fails to complete the work or partially completes it then, Tenderer reserve right to cancel the work order and get it done from other supplier and any loss due

to this shall be recovered either from any amount due to the supplier or from his Security Deposit.
n) At the time of inspection of MEDA, manufacturer or supplier has to submit the I.V. curves and test reports of supplied PV modules to respective officer.
o) The Wiring must be carried out in casing -capping / conduit which are suitable as per site condition
p) It will be responsibility of the Bidder to ensure the satisfactory performance of the system.
q) The Bidder shall provide the display board of size 3ft x 3ft that gives detailed information of system along with the contact details of manufacturer. This will help the beneficiary during 5 years CMC period.
r) The Bidder shall comply with the provision of contract labour (Regulation and Abolition) Act 1970, minimum wages Act 1948, payment of the wages Act 1963 Workmen's Compensation Act 1961, the contract labour (Regulation and Abolition) Act 1979 and all other related Acts and any modification thereof or any law relating there to and rules made there under from time to time.

s) If previous performance of any Bidder is found unsatisfactory or has failed to show progress /execute the system/ project that bidder will be outrightly disqualified.

t) If any information / confirmation on any point of these tender conditions are required Bidder may contact / write to Tenderer at *adortn@rediffmail.com* giving tender reference no. etc.

u) In the event of any dispute arising during installation & commissioning of the systems related to the work and documents, decision of Tenderer shall be final.

v) Once the Bidder submit his offer and subsequently if not interested to work, in such case Tenderer will forfeit his EMD amount.

w) At the time of placing work order and during the implementation, Tenderer can revise the technical terms and conditions if revised by MNRE, which will be binding on the Bidder.

x) Tenderer reserves the right to select L2 Bidder i.e. second lowest Bidder to complete the work, if L1 i.e. lowest Bidder fails to fulfill tender conditions, subject to L2 bidder accept the work at received L1 price.

y) It is binding on the successful Bidder to submit original certificates, documents required by Tenderer.

z) To ensure timely completion of project & to seek prompt operation maintenance service during CMC period bidder having existing office set-up in Ratnagiri shall be preferred while awarding the contract.

2) Communications

• Wherever provision is made for giving or issuing of any notice, instruction, consent, approval, certificate or determination by any person, unless otherwise specified such communication shall be in writing and shall not be unreasonably withheld or delayed.

• Project review coordination meetings between the Beneficiary, Tenderer's Representative and Contractor shall be conducted on a regular basis or as and when required by the Tenderer, at locations decided by the Tenderer, for Contractor's progress and plans for completing the works, to deal with matters affecting the progress of the Works, and to decide on responsibility for actions required to be taken. Decisions taken and instructions issued during the coordination meetings, as recorded in the Minutes, shall have the same force and effect as if they were written communications issued in this accordance.

3) Manner of Execution

Execution of work shall be carried out in the approved manner as outlined in the technical specifications or where not outlined, in accordance with relevant MNRE / MEDA / BIS / Indian Standard Specifications, to the reasonable satisfaction of The Employer.

• The Contractor/Agency should successfully complete the project within timeframe set out by the employer.

• Tenderer shall not be responsible for any loss or damage of any material when installing SPV power plants.

• Undertake necessary activities during the warranty period as set out in this Contract.

• It is the responsibility of successful bidder to make the insurance (cover theft/burglary/fire/damage) of SPV system from the date of commissioning for the CMC period.

4) Application

These General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the contract

5) Standards

The design, engineering, manufacture, supply, installation, testing and performance of the equipment shall be in accordance with latest appropriate IEC/ Indian Standards and as detailed in the Technical specifications Section as per the MNRE / MEDA requirements of the bid document and Annexure - A. The goods supplied under this contract shall confirm to the Standards mentioned where appropriate Standards and Codes are not available, other suitable standards and codes as approved by the authoritative Indian Standards shall be used.

6) Inspection:

• Successful bidder to submit the design engineering documents, Calculations & Drawings within weeks time after issue of work order for review & approve by Tenderer

• The projects will be inspected for quality at any time during commissioning or after the completion of the project by Tenderer.

• Bidder shall inform Tenderer in writing when any portion of the work is ready for inspection (site wise) giving sufficient notice to enable Tenderer to depute officials to inspect the same without affecting the further progress of the work. The work shall not be considered in accordance with the terms of the contract until the competent person from / for MEDA certifies in writing to that effect.
• The cost of Inspection shall be borne by Bidder only.
• Bidder has to strictly follow the specifications given in the work order while carrying out the execution of work. During inspection if it is found that Bidder has deviated from the specifications, Bidder has to do the alteration / modification / reconstructions as per the given specifications at his own cost & risk.

7) Transportation

Where the Contractor/Agency is required under the contract to transport the goods to specified locations defined as Project sites, transport to such places including insurance, shall be arranged by the Contractor / Agency, and the contract price shall include transportation costs.

8) Assignment

The Contractor / Agency shall not assign, in whole or in part to any third party, its obligations to perform under the contract, except with Tenderer 's prior written consent.

9) Sub-contracts
Subcontract is strictly prohibited (Turnkey i.e. E.P.C. as well as C.M.C.)

10) Termination for Default

Tenderer without prejudice to any other remedy for breach of contract, by written notice of default sent to the Contractor/ Agency, terminate the contract in whole or part:
• If the Contractor / Agency fails to deliver any or all the goods within the period(s) or within any extension thereof granted by the Tenderer.
• If the Contractor / Agency, in the judgment of Tenderer has engaged in corrupt or fraudulent practices in competing for or in executing the contract.
• In the event Tenderer terminates the contract in whole or in part, Tenderer may procure, upon such terms and in such manner as it deems. Appropriate goods or services similar to those un delivered and the Contractor / Agency shall be liable to Tenderer for any excess costs for such similar goods or services. However, the Contractor / Agency shall continue the performance of the contract to the extent not terminated.

11) Applicable Law

The contract shall be interpreted in accordance with the laws of the Union of India.

12) Notices
Any notice given by one party to the other pursuant to this contract shall be sent to other party in writing or by email and confirmed in writing to the other party's address specified

. A notice shall be effective when delivered or on the notice's effective date, whichever is later.

13) Packing

•The Bidder shall provide such packing of the goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the contract.
• The packing shall be sufficient to withstand, without limitation, rough handling and exposure to extreme temperatures during transit and open storage.
•Packing case size and weights shall take into consideration, where appropriate, the remoteness of the goods final destination and the absence of heavy handlings facilities at all points in transit.
•The packing, marking and documentation within and outside the item shall comply strictly with such special requirements as shall be provided for in the contract including additional requirements, if any and in any subsequent instructions ordered by the Tenderer.

14) Spares & tools-tackles:
The bidder shall provide / supply its own necessary tools -tackles for erection & testing and required for CMC, along with sufficient quantity for consumable items / spares for replacement, if any.

15) Danger plates:
The bidder shall provide four Danger Notice Plates at PV yard and one Danger Notice Plate at inverter of 200 mm X 150 mm made of mild steel sheet, minimum 2 mm thick and vitreous enamelled white on both sides and with inscription in signal red colour on front side as required. The inscription shall be in English and Marathi language.

16) Control Room:
Installation of Inverters and net meter shall be done at safe weatherproof location at each site for SPV power plants

17) Insurance:

• The Bidder shall be responsible and take an Insurance Policy for transit -cum-storagecum-erection for all the materials to cover all risks and liabilities for supply of materials on site basis, storage of materials at site, erection, testing and commissioning. The bidder shall also take appropriate insurance (cover theft/burglary/fire/damage) during O&M / CMC period for 100% of offered price.
• 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. The bidder shall provide insurance coverage ex-factory until commissioning and acceptance for replacement or repair of any part of the consignment due to damage or loss.

18) Grid connectivity:
Successful bidder has to process the application for net meter/ load extension with 8 days from issue of order. Bidder to obtain grid connectivity. Applicable fees shall be paid by Successful bidder. Also, clubbing of existing meters, increase the sanctioned load, in case if required , shall be in the scope of Successful bidder. Successful bidder has to review & confirm type & capacity of existing CT/PT & transformer for compatibility with type & capacity of proposed Solar Power Generation System during design engineering, well before placing orders for system components, however, such changes / replacement for CT/PT, transformer shall be done by end user / client, free of cost, Successful bidder to make sure / do the follow- up for such changes / replacement. Also, Successful bidder to arrange attend inspection by representative of DISCOM, if any. Energy meter / bi-directional net - meter shall be supplied as per specification provided by DISCOM & shall be procured by bidder to install at location / fed - injection point, indicated in consent received for grid connectivity by DISCOM.

19) 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 warrantee covering the rectification of any and all defects in the design of equipment, materials and workmanship including spare parts for a period of 5 years from the date of commissioning of project. The successful bidder has to transfer all the Guarantees/ Warrantees of the different components to the Owner of the project. The responsibility of operation of Warrantee and Guarantee clauses and Claims/ Settlement of issues arising out of said clauses shall be joint responsibility of the Successful bidder and the owner of the project and MEDA will not be responsible in any way for any claims whatsoever on account of the above.

SECTION-IV BRIEF INFORMATION ABOUT SITE

Sr.No	Name Of Site	SPV Capacity kWp	Estimated Price
1	**Rural Water Supply Scheme at Kuwarbav,**	60KW	2880000
	Total	**60KW**	2880000

The above Estimated costs are inclusive of total system cost and its installation, commissioning, transportation ,insurance, Technical sanction fee, five year CMC and applicable fees and taxes.

TECHNICAL SPECIFICATIONS

(60 kwp Grid Connected Solar Project)

_ DEFINITION :-

A Grid Tied Solar Rooftop Photovoltaic (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, Junction boxes, Distribution boxes and switches. PV Array is mounted on a suitable structure. Grid tied SPV system should be designed with necessary features to supplement the grid power during day time. Components and parts used in the SPV power plants including the PV modules, metallic structures, cables, junction box, switches, PCUs etc., should conform to the BIS or IEC or international specifications, wherever such specifications are
available and applicable. Solar PV system shall consist of following equipments/components. Solar PV modules consisting of required number of Crystalline PV cells. Grid interactive Power Conditioning Unit with Remote Monitoring System Mounting structures Junction Boxes.Earthing and lightening protections. IR/UV protected PVC Cables, pipes and accessories.

_ SOLAR PHOTOVOLTAIC MODULES :-

• The PV modules used should be made in India.

• 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. For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701.

b. The total solar PV array capacity should not be less than **60kwp** and should comprise of solar crystalline modules of minimum 250 Wp and above wattage. . Adequate protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided.

c. PV modules must be tested and approved by one of the IEC authorized test centres.

d. The module frame shall be made of corrosion resistant materials, preferably having anodized aluminium.

e. Other general requirement for the PV modules and subsystems shall be the Following:

_ The rated output power of any supplied module shall have tolerance within +/-3%.

_ 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.

_ The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-pass diode. The box shall have
hinged, weather proof lid with captive screws and cable gland entry points or may be of sealed type and IP-65 rated.

_ SOLAR PHOTOVOLTAIC MODULES :-

• Modules deployed must use a RF identification tag. The following information must be mentioned in the RFID used on each modules. This should be inside the laminate only.

a. Name of the manufacture of the PV module

b. Name of the manufacture of Solar Cells.

c. Month & year of the manufacture (separate for solar cells and modules)
d. Country of origin (separately for solar cells and module)
e. I-V curve for the module Wattage, Im, Vm and FF for the module
f. Unique Serial No and Model No of the module
g. Date and year of obtaining IEC PV module qualification certificate.
h. Name of the test lab issuing IEC certificate.
i. Other relevant information on traceability of solar cells and module as per ISO 9001 and ISO 14001

_ WARRANTIES :-

• Material Warranty:

a. Material Warranty is defined as: The project developer 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 ("Customer")
b. Defects and/or failures due to manufacturing
c. Defects and/or failures due to quality of materials
d. Non conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the project developer will repair or replace the solar module(s), at the Owners sole option.

• Performance Warranty:

a. 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 :-

• 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.
• 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 (wind speed of 150 kM/ hour). It may be ensured that the design has been certified by a recognized Lab/ Institution in this regard and submit wind loading calculation sheet to MEDA. Suitable fastening arrangement such as grouting and calming should be provided to secure the installation against the specific wind speed.
• 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.
• 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.
• 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.
• Regarding civil structures the EoI holder need to take care of the load bearing capacity of the roof and need arrange suitable structures based on the quality of roof.
• The total load of the structure (when installed with PV modules) on the terrace should be less than 60 kg/m2.
• The minimum clearance of the structure from the roof level should be 300 mm.

_ JUNCTION BOXES (JBs) :-

• 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

JBs shall be such that input & output termination can be made through suitable cable glands.

• 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.

• Each Junction Box shall have High quality Suitable capacity Metal Oxide Varistors (MOVs) / SPDs, suitable Reverse Blocking Diodes. The Junction Boxes shall have suitable arrangement monitoring and disconnection for each of the groups.

• 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.

• All fuses shall have DIN rail mountable fuse holders and shall be housed in thermoplastic IP 65 enclosures with transparent covers.

_ DC DISTRIBUTION BOARD :-

• DC Distribution panel to receive the DC output from the array field.

• 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.

_ AC DISTRIBUTION PANEL BOARD :-

• 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.

• All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS 60947 part I, II and III.

• The changeover switches, cabling work should be undertaken by the EoI holder as part of the project.

• 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

• The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.

• All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.

• Should conform to Indian Electricity Act and rules (till last amendment).

• All the 415 AC or 230 volts devices / equipment like bus support insulators, circuit breakers, SPDs, VTs etc., mounted inside the switchgear shall be suitable for continuous operation and satisfactory performance under the following supply conditions

Variation in supply voltage +/- 10 %

Variation in supply frequency +/- 3 Hz

_ PCU / ARRAY SIZE RATIO :-

• The combined wattage of all inverters should not be less than rated capacity of power plant under STC.

• Maximum power point tracker shall be integrated in the PCU/inverter to maximize energy drawn from the array.

_ PCU / INVERTER :-

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

Switching devices	IGBT/MOSFET
Control	Microprocessor /DSP
Nominal AC output voltage and frequency	230V/415V, 1/3 Phase, 50 Hz (In case single phase inverters are offered, suitable arrangement for balancing the phases must be made.)
Output frequency	50 Hz
Grid Frequency Synchronization range	+ 3 Hz or more
Ambient temperature considered	-20o C to 50o C
Humidity	95 % Non-condensing
Protection of Enclosure	IP-20(Minimum) for indoor.
	IP-65(Minimum) for outdoor.
Grid Frequency Tolerance range	+ 3 or more
Grid Voltage tolerance	-0.20.15
No-load losses	Less than 1% of rated power
Inverter efficiency(minimum)	>93% (In case of 10 kW or above with inbuilt galvanic isolation) >97% (In case of 10 KW or above without in-built galvanic isolation)
Inverter efficiency (minimum)	> 90% (In case of less than 10 kW)
THD	< 3%
PF	> 0.9

a. PCU / inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown.
b. 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.
c. Built-in meter and data logger to monitor plant performance through external computer shall be provided.
d. **Anti-islanding** (Protection against Islanding of grid): The PCU shall have anti islanding protection in conformity to IEEE 1547/UL 1741/ IEC 62116 or equivalent BIS standard.
e. The PCU/ inverter generated harmonics, flicker, DC injection limits, Voltage Range, Frequency Range and Anti-Islanding measures at the point of connection to the utility services should follow the latest CEA (Technical Standards for Connectivity Distribution Generation Resources) Guidelines.
f. 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.
g. The 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.
h. 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 PVsystem shall be out of synchronization and shall be disconnected from the
grid. Once the DG set comes into service, PV system shall again besynchronized with DG supply and load requirement would be met to the extent of availability of power. 4 pole isolation of inverter output with respect to the grid/ DG power connection need to be provided.

_ DATA ACQUISITION SYSTEM / PLANT MONITORING :-

• Data Acquisition System shall be provided for each of the solar PV plant above 10 kWp capacity.
• Data Logging Provision for plant control and monitoring, time and date stamped system data logs for analysis with the high quality, suitable PC. Metering and Instrumentation for display of systems parameters and status indication to be provided.
• Temperature: Temperature probes for recording the Solar panel temperature and/or ambient temperature to be provided complete with readouts integrated with the data logging system.
• The following parameters are accessible via the operating interface display in real time separately for solar power plant:
a. AC Voltage.
b. AC Output current.
c. Output Power
d. Power factor.
e. DC Input Voltage.
f. DC Input Current.

g. Time Active.
h. Time disabled.
i. Time Idle.
j. Power produced
k. Protective function limits (Viz-AC Over voltage, AC Under voltage, Over frequency, Under frequency ground fault, PV starting voltage, PV stopping voltage.

• All major parameters available on the digital bus and logging facility for energy auditing through the internal microprocessor and read on the digital front panel at any time) and logging facility (the current values, previous values for up to a month and the average values) should be made available for energy auditing through the internal microprocessor and should be read on the digital front panel.

• PV array energy production: Digital Energy Meters to log the actual value of AC/ DC voltage, Current & Energy generated by the PV system provided. Energy meter along with CT/PT should be of 0.5 accuracy class.

• Computerized DC String/Array monitoring and AC output monitoring shall be provided as part of the inverter and/or string/array combiner box orseparately.

• String and array DC Voltage, Current and Power, Inverter AC output voltage and current (All 3 phases and lines), AC power (Active, Reactive and
Apparent), Power Factor and AC energy (All 3 phases and cumulative) and frequency shall be monitored.

• Computerized AC energy monitoring shall be in addition to the digital AC energy meter.

• The data shall be recorded in a common work sheet chronologically date wise. The data file shall be MS Excel compatible. The data shall be represented in both tabular and graphical form.

• All instantaneous data shall be shown on the computer screen.

• Software shall be provided for USB download and analysis of DC and AC parametric data for individual plant.

• Provision for instantaneous Internet monitoring and download of historical data shall be also incorporated.

• Remote Server and Software for centralized Internet monitoring system shall be also provided for download and analysis of cumulative data of all the plants and the data of the solar radiation and temperature monitoring system.

• Ambient / Solar PV module back surface temperature shall be also monitored on continuous basis.

• Simultaneous monitoring of DC and AC electrical voltage, current, power, energy and other data of the plant for correlation with solar and environment data shall be provided.

• Remote Monitoring and data acquisition through Remote Monitoring System software at the owner / MEDA location with latest software/hardware configuration and service connectivity for online / real time data monitoring / control complete to be supplied and operation and maintenance / control to
be ensured by the EoI holder.

_ 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. Finalization of tariff is not under the purview of MEDA or MNRE.
Decisions of appropriate authority like DISCOM, state regulator may be followed.

_ 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.

_ SURGE PROTECTION :-

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

_ EARTHING PROTECTION :-

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

a. Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards
b. Temp. Range: –10oC to +80oC.
c. Voltage rating 660/1000V
d. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation
e. Flexible
f. 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%)
g. For the DC cabling, XLPE or, XLPO insulated and sheathed, UVstabilized single core multi-stranded flexible copper cables shall be used; Multi-core cables shall not be used.

h. For the AC cabling, PVC or, XLPE insulated and PVC sheathed single or, multi-core multi-stranded flexible copper cables shall be used; Outdoor AC cables shall have a UV-stabilized outer sheath.
i. The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use. Outer sheath of cables shall be electron beam cross-linked XLPO type and black in colour.
j. The DC cables from the SPV module array shall run through a UVstabilized PVC conduit pipe of adequate diameter with a minimum wall thickness of 1.5mm.
k. Cables and wires used for the interconnection of solar PV modules shall be provided with solar PV connectors (MC4) and couplers.
l. All cables and conduit pipes shall be clamped to the rooftop, walls and ceilings with thermo-plastic clamps at intervals not exceeding 50 cm; the minimum DC cable size shall be 4.0 mm2 copper; the minimum AC cable size shall be 4.0 mm2 copper. In three phase systems, the size of the neutral wire size shall be equal to the size of the phase wires. m. Cable Routing / Marking: All cable/wires are to be routed in a GI cable tray and suitably tagged and marked with proper manner by good quality
ferule or by other means so that the cable easily identified. In addition, cable drum no. / Batch no. to be embossed/ printed at every one meter.
n. Cable Jacket should also be electron beam cross-linked XLPO, flame retardant, UV resistant and black in colour.
o. All cables and connectors for use for installation of solar field must be of solar grade which can withstand harsh environment conditions including High temperatures, UV radiation, rain, humidity, dirt, salt, burial and attack by moss and microbes for 25 years and voltages as per latest IEC standards. DC cables used from solar modules to array junction box shall be solar grade copper (Cu) with XLPO insulation and rated for 1.1kV as per relevant standards only.
p. The ratings given are approximate. EoI holder to indicate size and length as per system design requirement. All the cables required for the plant shall be provided by the EoI holder. Any change in cabling sizes if desired by the EoI holder shall be approved after citing appropriate reasons. All cable schedules/ layout drawings shall be approved prior to installation.
q. 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.
r. The total voltage drop on the cable segments from the solar PV modules to the solar grid inverter shall not exceed 2.0%.
s. The total voltage drop on the cable segments from the solar grid inverter to the building distribution board shall not exceed 2.0%.

_ TOOLS & TACKLES AND SPARES :-

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

• A list of requisite spares in case of PCU/inverter comprising of a set of control logic cards, IGBT driver cards etc. Junction Boxes. Fuses, MOVs / arrestors, MCCBs etc along with spare set of PV modules be indicated, which shall be supplied along with the equipment. A minimum set of spares shall be maintained in the plant itself for the entire period of warranty and Operation &
Maintenance which upon its use shall be replenished.

_ DANGER BOARDS AND SIGNAGES :-

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

_ FIRE EXTINGUISHERS :-

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

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

_ DRAWINGS & MANUALS :-

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

_ PLANNING AND DESIGNING:

• The EoI holder should carry out Shadow Analysis at the site and accordingly design strings & arrays layout considering optimal usage of space, material and labour. The EoI holder should submit the array layout drawings along with Shadow Analysis Report to owner for approval.

- SAFTY MEASURES

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

- Display Board

The Manufacturer/Supplier holder has to display a board at the project site mentioning the following.

a.Plant Name, Capacity, location,Type of Renewable EnergyPLant (solar) Date of commissioning
b. The size and type of board and display shall be appropriate.

Remote Monitoring System (RMS)

1. Remote Monitoring System (RMS) shall be provided for all solar PV plant.
2. Computerized DC String / Array monitoring and AC output monitoring shall be provided as part of the inverter and/or string/array combiner box or separately.

3. String and array DC Voltage, Current and Power, Inverter AC output voltage and current (All 3 phases and lines), AC power (Active, Reactive and Apparent), Power Factor and AC energy (All 3 phases and cumulative) and frequency shall be monitored.
4. The time interval between two sets of data shall not be more than 3 minutes. (A minimum of 20 samples of data shall be recorded per hour)
5. Data Acquisition System shall have real time clock, internal reliable battery backup and data storage capacity to record data round the clock for a period of minimum one year
6. Computerized AC energy monitoring shall be in addition to the digital AC energy meter.
7. The date shall be recorded in a common work sheet chronologically date wise. The data file shall be MS Excel compatible. The data shall be represented in both tabular and graphical form.
8. All instantaneous data shall be shown on the computer screen
9. Software shall be provided for USB download and analysis of DC and AC parametric data for the plant
10 . Provision for internet monitoring and download of data shall be also incorporated.
11. Software for centralized internet monitoring system shall be also provided for download and analysis of cumulative data of the plant and the data of the solar radiation and environment monitoring system
12. A data logging system (Hardware and Software) for plant control and monitoring shall be provided
13. Remote Supervisory Control and data acquisition through SCADA or equivalent software at the purchasers location with latest software/hardware configuration and service connectivity for online / real time data monitoring/control complete to be supplied and operation and maintenance/control to be ensured by the supplier.
14. Disconnection and Islanding: Disconnection of the PV plant in the event of loss of the main grid supply is to be achieved by in built protection within the power conditioner; this may be achieved through rate of change of current, phase angle, unbalanced voltage or reactive load variants.
15. Operation outside the limits of power quality as described in the technical data sheet should cause the power conditioner to disconnect the grid. Additional parameters requiring automatic disconnection are : Neutral voltage displacement. 16. PCU shall have the facility to reconnect the PCU automatically to the grid, following restoration of grid, subsequent to grid failure condition. And also the facility to connect the system with load at grid failure condition for essential power supply.
1. Temperature: 0 to 60 Deg. C.
2. Relative Humidity : 100% @ 40 Deg. C
3. Precipitation : 2.46 mm per day (Annual average)
4. Clearness Index : 0.62 (Annual average)
5. Wind Speed: up to 150 km/hr.
6. Corrosion : high
7. Dust : moderate to high
8. Bird Interference : high
9. Bird Droppings : frequent and large
10. Trees: large and in abundance.

_ CONNECTIVITY :-

• The maximum capacity for interconnection with the grid at a specific voltage level shall be as specified in the Distribution Code/Supply Code of the State and amended from time to

time. Following criteria have been suggested for selection of voltage level in the distribution system for ready reference of the solar suppliers.

Plant Capacity	**Connecting voltage**
Up to 10 kW	240V-single phase or 415V-three phase at the option of the consumer
Above 10kW and up to 100 kW	415V – three phase
Above 100kW	At HT/EHT level (11kV/33kV/66kV) as per DISCOM rules

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

Testing, Certification and Approval Schedule

All components, sub -assemblies and system test parameters shall be verified on site to ensure they meet the specifications.

Plant Energy Performance

The overall energy performance ratio of the system shall exceed 75%. (Sum total of the system energy losses shall not exceed 25%). For global solar insolation in the Plane of Array (PoA) of 5 kWh/ m2 (5 Peak Sun Hours) for the day. For example: 10kW PV power plant AC energy output shall be minimum of 37.5 kWh (10 kW x 0.75 x 5 hrs.) for the day.

Operation and Maintenance (O&M)

1. Cleaning of solar PV modules with water, wet and dry mops : Weekly
2. DC String / Array and AC Inverter monitoring: Continuous and computerized.
3. AC Energy monitoring: Continuous and computerized.
4. Visual Inspection of the plant : Monthly
5. Functional Checks of Protection Components and Switchgear: Quarterly.
6. Spring Clean PV Array and Installation Area: Quarterly.
7. Inverter, data acquisition, energy meters and power evacuation checks: Half Yearly.
8. Support structure and terrace water-proofing checks: Yearly.
9. O & M log sheet shall be provided and maintained.
10. The repair/replacement work shall be completed wit hin 48 hours from the time of reporting the fault.
11. A half yearly performance report of the plant inclusive of energy generation data shall be provided as per approved format.
12. All recorded data for the first 5 years shall be preserved in both manual and computer format and submitted at hand over.

2. COMPREHENSIVE MAINTENANCE CONTRACT (CMC)

(i) The complete Solar PV Power Plant must be guaranteed against any manufacturing / design/ installation defects for a minimum period of 5 years. (ii) PV modules used in Solar PV Power Plant must be guaranteed for their output
peak watt capacity, which should not be less than 90% at the end of 1 0 years and 80% at the end of 25 years.

(iii) During the CMC period, MNRE / MEDA / users will have all the rights to cross check the performance of the Solar PV Power Plant. MEDA may carry out the frequent inspections of the Solar PV Power Plant installed and randomly pick up its components to get them tested at Govt. / MNRE approved any test centre. If during such tests any part is not found as per the specified technical parameters, MEDA will take the necessary action. The decision of MEDA in this regard will be final and binding on the bidder.

Warranties and Guarantees

1. Solar Modules: Workmanship/ product replacement for 10 years.
2. Solar Modules: 90% power output for 10 years & 80% power output for 25 years.
3. Inverter: Workmanship/product replacement for 5 years, service for 25 years
4. Power Evacuation and Metering Equipment: Workmanship/product replacement for 10 years, service for 25 years
5. BoS: Parts and Workmanship for 10 years, service for 25 years.
6. Power Plant Installation : Workmanship for 10 years, service for 25 years
7. PV Array Installation : Structural for 25 years
8. Power plant power performance ratio-min 75%
9. Power plant energy performance ratio-min. 75% Standards and Compliance 1. IEC 60364-7-712: Electrical Installations of Buildings: Requirements for Solar PV power supply systems.
2. IEC 61727 or similar: Utility Interface Standard for PV power plants > 10 kW.
3. IEC 62103, 62109 and 62040 (UL 1741): Safety of Static Inverters – Mechanical and Electrical safety aspects. 4. IEC 62116: Testing procedure of Islanding Prevention Methods for Utility - Interactive PV Inverters.
5. PV Modules : IEC 61730 - Safety qualification testing, IEC 61701 – Operation in corrosive atmosphere
6. IEC 61215 : Crystalline Silicon PV Modules qualification
7. String/array junction boxes : IP65, Protection Class II, IEC 60439-1, 3.
8. Surge Protection Devices: Type 2, DC 1000V rated.
9. PV module / string / string combiner box interconnects: MC4 compatible. DC 1000V rated.
10. The central inverter shall be rated for IP54.
11. The DC/AC distribution boxes shall be rated IP54.
12. The data acquisition systems shall be rated for IP54.
13. All DC and AC cables, conduits, cable trays, hardware: relevant IS.
14. Earthing System: relevant IS.
15. PV array support structure: relevant IS.
16. Quality Certification, Standards and Testing for Grid-Connected Rooftop Solar PV Systems/ Power Plants should be maintained as per Annexure- A.

Annexure- A
QUALITY CERTIFICATION, STANDARDS AND TESTING

FOR GRID- CONNECTED ROOFTOP SOLAR PV SYSTEMS/ POWER PLANTS Quality certification and standards for grid -connected rooftop solar PV systems are essential for the successful mass -scale implementation of this technology. It is also imperative to put in place an efficient and rigorous monitoring mechanism, adherence to these standards. Hence, all components of grid -connected rooftop solar PV system/ plant must conform to the relevant standards and certifications given below:

IEC 61215/ IS 14286	Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV) Modules
IEC 61701	Salt Mist Corrosion Testing of Photovoltaic (PV) Modules
IEC 61853- Part 1 /IS 16170: Part 1	Photovoltaic (PV) module performance testing and energy rating –:Irradiance and temperature performance measurements, and power rating
IEC 62716	Photovoltaic (PV) Modules – Ammonia (NH3) Corrosion Testing (As per the site condition like dairies, toilets)
IEC 61730-1,2	Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for Construction, Part 2: Requirements for Testing
Solar PV Inverters	
IEC 62109-1, IEC 62109-2	Safety of power converters for use in photovoltaic power systems Part 1–: General requirements, and Safety of power converters for use in photovoltaic power systems Part 2: Particular requirements for inverters. Safety compliance (Protection degree IP 65 for outdoor mounting, IP 54 for indoor mounting)
IEC/IS 61683 (as applicable)	Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions)
IEC 62116/ UL1741/ IEEE 1547 (as applicable)	Utility-interconnected Photovoltaic Inverters - Test Procedure of Islanding Prevention Measures
IEC 60255-27	Measuring relays and protection equipment – Part 27: Product safety requirements
IEC 60068- 2/IEC 62093 (as applicable)	Environmental Testing of PV System – Power Conditioners and Inverters
Fuses	

IS/IEC 60947(Part 1, 2 & 3) EN50521	General safety requirements for connectors, switches, circuit, breakers (AC/DC): a) Low-voltage Switchgear and Control-gear, Part 1: General rules b) Low-Voltage Switchgear and Control-gear, Part 2: Circuit Breakers c) Low-voltage switchgear and Control-gear, Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units d) EN 50521 : Connectors for photovoltaic systems – Safety requirements and tests
IEC 60269-6	Low-voltage fuses - Part 6: Supplementary requirements for fuse- links for the protection of solar photovoltaic energy systems
Surge Arrestors	
BFC 17 -102: 2011	Lightening Protection Standard
IEC 60364-5-53/ IS 15086-5 (SPD)	Electrical installations of buildings - Part 5 - 53: Selection and erection of electrical equipment - Isolation, switching and control
IEC 61643- 11: 2011	Low-voltage surge protective devices - Part 11: Surge protective 2011 devices connected to low-voltage power systems - Requirements and test methods
Cables	
IEC 60227 /IS694, IEC 60502 /IS1554 (Part 1 & 2) / IEC 69947 (as applicable)	General test and measuring method for PVC (Polyvinyl chloride) insulated cables (for working voltages up to and including 1100 V, and UV resistant for outdoor installation)
BS EN 50618	Electric cables for photovoltaic systems (BT(DE/NOT)258), mainly for DC Cables
Earthing /Lightning	
IEC 62561 Series (Chemical earthing) (as applicable)	IEC 62561-1 Lightning protection system components (LPSC) - Part 1: Requirements for connection components IEC 62561-2 Lightning protection system components (LPSC) - Part 2: Requirements for conductors and earth electrodes IEC 62561-7 Lightning protection system components (LPSC) - Part 7: Requirements for earthing enhancing compounds
Junction Boxes	
IEC 60529	Junction boxes and solar panel terminal

	boxes shall be of the thermo-plastic type with IP 65 protection for outdoor use, and IP 54 protection for indoor use
Energy Meter	
IS 16444 or as specified by the DISCOMs	A.C. Static direct connected watt-hour Smart Meter Class 1 and 2 Specification (with Import & Export/Net energy measurements) —
Solar PV Roof Mounting Structure	
IS 2062/ IS 4759	Material for the structure mounting
Note- Equivalent standards may be used for different system components of the plants.	

Annexure- B

Sample / Standard Format for PERFORMANCE BANK GUARANTEE

To,
Agriculture Development Officer
Zilla Parishad Ratnagiri

WHEREAS [name and address of Contractor] (hereinafter called "the Contractor") has undertaken, in pursuance of Work Order No. _____ Tender No. DOK/SW/RATNAGIRI/GCRT/2020-21/04 for works _ _____, dated _____ 2020 to design, manufacture, supply, installation, testing and commissioning with five years comprehensive maintenance contract of Grid Connected Solar Photo Voltaic (SP V) Power Plant 60 kWp (Cumulative Capacity) under / with net metering at G.P. KUVARBAV Tal. & Dist Ratnagiri, Maharashtra. (hereinafter referred to as the contract of works) and as described in the Bidding Data in Maharashtra State for

works under single point responsibility “Turnkey Contracts” basis (hereinafter called "the Contract"); AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligation in accordance with the Contract; AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee; NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of _____ [amount of Guarantee] _____ [in words], and we undertake to pay you, through our branch office at _____ upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ [amount of Guarantee] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein. We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until the date of completion of the defects liability period, 5 yrs. From date of commissioning with a claim period of further one month

Yours truly,	
Signature and seal of the	
Guarantor:	
Name of Bank/Financial	
Institution:	
Address:	
Dat	

Format-B

DECLARATION
(On company's letter head)

To,
Agriculture Development Officer
Zilla Parishad Ratnagiri

Reference: E-tender no _____

Sir/Madam,

1. We have carefully read and understood all the terms and conditions of the tender and hereby convey our acceptance to the same.

2. The information / documents furnished along with our offer are true and authentic to the best of my knowledge and belief, We are well aware of the fact that furnishing of any false information/ fabricated document would lead to rejection of our tender at any stage besides liabilities towards prosecution under appropriate law.

3. We have apprised our self fully about the job to be done during the course of the period of agreement and also acknowledge bearing consequences to of non - performance or deficiencies in the services on our part.

4. We have no objection, if enquiries are made about the work listed by us.

5. We have not been barred or blacklisted by any Government Agency / Department / PSU or any such competent Government authority, organization where we have worked. Further, if any of the partners/directors of the organization /firm is blacklisted or having any criminal case against them, our bid shall not be considered. At any later point of time, if this information is found to be false, Agriculture Development Officer, Zilla Parishad Ratnagiri , may terminate the assigned contract immediately.

6. We have not been found guilty by a court of law in India for fraud, dishonesty or moral turpitude.

7. We agree that the decision of Agriculture Development Officer Z. P. Ratnagiri, Maharashtra Energy Development Agency in selection of Bidders will be final and binding to us.

For (Company Name)

Name of signing authority / Designation / Place / Date

Format - C

DETAILS OF BANKER

Sr.No	Particulars	
1	Name of Bank	
2	Name of Branch / IFSC Code	
3	Account Name	
4	Account No	
5	Type of Account	

For
(Company Name)

Name of signing authority / Designation / Place / Date

Format - D

BIDDER'S INFORMATION

Sr.NO	Particulars	
1	Name of firm	
2	Details Mailing Address of firm	
3	Firm Status (PSU / Incorporate / Ltd. / Pvt. Ltd. / LLP / Partnership / Proprietory)	
4	Contact Person Name & Designation	
5	Contact No.	
6	E-mail Address for correspondence	
7	Firm Website Address	
8	Firm Registration No / ROC Establish Year of firm	
9	PAN No	
10	GST No.	
11	Validity for MNRE Rating (Certificate)	
12	Turnover (in ₹) 2012-13, 2013-14 & 2014-15	
13	Company Profile (<100 words)	
14	Skilled manpower	
15	Experience in SPV Power Plant (<100 Word)	
16	Experience in other solar projects (<100 words)	
17	Solar related Product Range	

18	Experience in Guarantee, Maintenance & After Sales Services (Years)	
19	Accreditation / Special achievement, if any by Firm / Bidder	
20	List of ISI, ISO, Other cert.	

DETAILS FOR O & M TEAM

Sr. No.	Particulars	
1	Name of Concern Authority for Operation & Maintenance / Operation Head for installed system	
2	Contact No.	
3	Email ID	
4	Detailed Address for correspondence (Local Branch office; Separate set-up for Operation & Maintenance, if any)	
5	Details & No. of Qualified & Experience Technical Expert	
6	Details & No. of Skilled labour	
7	Details & No. of Un-skilled labour	

Successful bidder shall have to provide adequate man power & to ols-tackles during entire period of CMC.

Also, successful bidder shall have adequate insurance, to protect entire system for the period up to the period for CMC.

For
(Company Name)

Name of signing authority / Designation / Place / Date

TURNOVER CERTIFICATE
(On C.A.'s letter head)

This is to certify that, the …….. (Name of Firm) …….. registered as / under …….. having registered address …….. …….. and assess to income tax with Circle …., … (location) …. and holding IT PAN ……..

Further, it is certified that, the sales / turnover of the above referred company for the last three years are as under.

Annual Turnover Data for last 3 Years (FY 2016-17, 2017-18 & 2018-19)	
Year	Rupees in Lacs
2016-17	
2017-18	
2018-19	
Total	

We have verified the books of accounts, records and other relevant documents. This certificate has been issued on the basis of data / information produced before us and on the request of the client

For

(Name of C.A. Firm) Seal

Name Signing authority (C.A.)

Place: Date:

Note: Bidders to submit scanned copy of IT returns for last three financial years, supporting with summery of balance sheet / auditor's report, along with above

Format - G

LIST OF PROJECTS
(Grid connected / of grid Solar P V Power Generation Plants)

Sr.	**Name of Project**	**Plant Capacity**	**Date for commissioning / No. Current Status of Project**

FOR

(Company Name)

Name of signing authority / Designation / Place / Date

Note: Bidders to submit self attested scanned copies of work / purchase orders supporting with above project list, this is necessary for to review qualifying criteria.

Format - H

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

To,
Agriculture Development Officer
Zilla Parishad Ratnagiri

Reference: E-tender no. DOK/SW/Ratnagiri/2020-21/

Sub. : Site Visit Report for DESIGN, MANUFACTURE, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING WITH FIVE YEARS COMPREHENSIVE MAINTENANCE CONTRACT OF TOTAL 60 KWP (DISTRIBUTED CAPACITY) GRID CONNECTED SPV POWER PLANT (NET METER) AT G. P. Kuvarbav RATNAGIRI, MAHARASHTRA.

Sir/Madam, This has reference to above referred tender of setting of SPV power plant (Net Meter). I / We hereby declare that we have visited site at **Rural Water Supply Scheme at Kuwarbav** I / We made ourselves acquainted with site conditions, grid connectivity details, approach to site, requirement of Roof-top structure / land, availability of water, requirement of tender conditions etc. I / We verified all details required to execute the projects. I / We have no problems in undertaking the project at given site and complete same in the given time period Thanking you Yours faithfully, Seal:

(Signature of Bidder)

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

Designation: ……..

Seal:

Signature by ADO

Format - I

DETAILS OF OFFERED SYSTEM

Sr.No	Particulars	capacity
		Quantity
		Make
1	Module Mounting Structure	
2	Solar PV modules	
3	Inverter with Maximum Power Point tracking (MPPT) Charge Controller with inbuilt data Monitoring & safety interlocks	
4	Array Junction Box	
5	DC Cables	
6	Distribution Boards / Panels	
7	AC Cables	
8	Lightening Arrestor	
9	Earthing Equipments	
10	Net Meter / Bidirectional Meter / Generation meter	
11	Fire Detection & Protection System / Fire Extinguishers Tools & Tackles required for installation,	
12	testing, operation & maintenance of entire SPV Systems	

Note: Bidders to submit technical Brochure for offered P V Module & Inverter along with test certificates / reports compiling applicable Standards as per guidelines issued by MNRE & with details of Guaranty & Warranty. Sub -standard makes or indication of 'Equivalent make' shall strictly be avoided

Format - 1

DATA FOR ASSURED POWER GENERATION

Sr.No	Power Generation During #	60kWp
1	Min. total peak hour	
2	Min. total for 1st year	
3	Min. total for 2nd year	
4	Min. total for 3rd year	
5	Min. total for 4th year	
6	Min. total for 5th year	
7	Min. total for 10th year	
8	Min. total for 15th year	
9	Min. total for 20 th year	
10	Min. total for 25 th year	

Note: "#" Energy generation / Power production in (AC) units at application by offered SPV system; considering ideal conditions / climatic conditions proposed.

कृषि विकास अधिकारी
जिल्हा परिषद रत्नागिरी

DAO