TALEGAON DABHADE MUNICIPAL COUNCIL,
TAL. - MAVAL, DIST – PUNE

B-1 TENDER PAPERS

(E-Tender)

FOR THE WORK OF **– DESIGN, MANUFACTURE, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING WITH FIVE YEARS COMPREHENSIVE MAINTENANCE OF 95 kWp (Cumulative) GRID CONNECTED SPV POWER PLANT AT VARIOUS LOCATIONS OF TALEGAON DABHADE NAGARPARISHAD**

Estimated Amount	**:**	**Rs.**	**45,90,000 /-**
Tender Fee	**:**	**Rs.**	**1,500/-**
Earnest Money	**:**	**Rs.**	**45,900/-**

Tender Notice No. 1(E-Tender)
2020 – 2020

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SECTION-I
BID INVITATION

Brief Description of Tender Process

- **The Chief Officer,** on behalf of **Talegaon Dabhade Municipal Council**, 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 comprise 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.
- Also bidder will be required to deposit refundable Earnest Money Deposit (EMD) of Rs. 45,900/- along with its tender. However, Earnest Money Deposit (EMD) exemption will be considered to the tenderer as per government circular/GR subject to satisfaction of all related documentary evidence.
- **Talegaon Dabhade Municipal Council** 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.	
2	Tender can be downloaded	Between 27 May 2020 to 16 June 2020; 05:00 PM.
3	Estimated Cost **95 kWp** Grid Connected SPV Power Plant	**Rs. 45,90,000/-** (as per Benchmark cost of MNRE with 5 year CMC).
4	Tender document fee	**Rs. 1,500/-** (Rs. One Thousand Five Hundred Only) Non-refundable & Non Transferable (to be submitted online on mahatenders portal).
5	Earnest Money Deposit (EMD)	**Rs. 45,900/-** (Rs. Forty Five Thousand Nine Hundred Only) (to be submitted online on mahatenders portal).
6	Pre-Bid Meeting Details	**04 June, 2020; at 11:00 PM** at **Talegaon Dabhade Municipal Council** Participants shall depute their representative, having signing authority and having knowledge about General Conditions of Tender, Scope & knowledge about Site Locations.
7	Last date & Time for submission of Bids	**16 June 2020 up to 05:00 PM.**
9	Date & Time of opening of Technical Bid	**18 June 2020 at 12:30 PM.**
10	Security Deposit:	**3% of contract value.**
11	Address for communication and Venue for Tender opening	**Chief Officer,** **Talgeaon Dabhade Municipal Council,** **Talgeaon Dabhade.** **Email- talegaondabhademc@gmail.com**

- The date & time of opening of Price Bid will be announced later.
- It is compulsory to pay tender document fee, EMD through E-payment at ***https://mahatenders.gov.in*** **portal.**
- Eligible bidders can upload the Tenders through Maha-e-tender portal of **GoM: *https://mahatenders.gov.in* portal.**

SECTION-II

INFORMATION AND INSTRUCTION TO BIDDERS

The Employer invites e-tender from eligible bidders for "works" include; Design, Manufacture, Supply, Installation, Testing and Commissioning With Five Years Comprehensive Maintenance of Grid Connected 95 kWp (Cumulative) SPV System including Net-meter and site specific synchronisation system components to be installed at various locations of Talegaon Dabhade Nagar Parishad), Pune, Maharashtra (Herein after referred to as the contract of works) and as described in the tender document on **'Turnkey Contracts'** under Tender No:

1. Scope of Works

- Design, Manufacture, Supply, Installation, Testing and Commissioning with five years comprehensive maintenance of (95 kWp) under net metering at various locations of Talegaon Dabhade Nagar Parishad, Pune, Maharashtra on 'Turnkey Contract' and 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 project for efficient running of the system.
- Detailed planning with milestone chart for smooth execution of project.
- Selected Bidder shall be bound to operate and maintain the system as per the rules, regulations and modalities as prescribed by MNRE and EMPLOYER for the effective functioning of the project.
- **Time is the essence in completing the Works:** The successful Bidder will be required to complete the work within the stipulated time as specified in the tender document. The bidder shall ensure that SPV power plant should be commissioned within **180 days** from the date of issue of work order.
- Bids shall be complete and cover all works described in the tender. However if any item of works required for completing the project shall be deemed to be included in bidder's scope; irrespective of whether it is specifically mentioned or not in the tender document.
- Bidder should obtain all the statutory permissions with necessary fees from statutory bodies wherever required for execution of works.
- 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 and are liable to be rejected.

2. Eligibility

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

- They should provide valid registration certificate issued by PWD/MJP In Prescribed Class.
- Shall manufacture/supply the material (module, inverter) only as per the latest IEC/BIS/IS standards.
- Should have experience certificate of MEDHA of same work and equivalent amount and project should be grid connected SPV system; installed, commissioned & working successfully. Satisfactory certificate of Government or Semi government organisation along with contact details of concern authority at installation (Beneficiary/Client) is to be submitted. The details must be submitted in the Performa given in Technical- Bid section of tender document along with the self attested copies of work order. Experience certificate (Work order/Purchase order/Work completion report) from client should be submitted.
- Annual Turnover of the Company/Firm/ Corporation in the last three financial years should be at least 50 Lakhs for each year (Rupees Fifty Lakhs only) (This must be the individual Company's turnover and not that of any group of Companies; A summarized sheet of turnover for last three years with average turnover certified by registered CA should be compulsorily enclosed).
- SSI Certificate mandatory.
- Shall manufacture/supply the material (module & inverter) only as per the standards mention in tender document. They should provide valid IEC certificate of SPV Module & Inverter and test report from authorized test centre of MNRE, GoI
- The goods supplied and works executed under this contract shall confirm to the standards mentioned in the technical specification and where no applicable standard is mentioned, the latest version of Indian Standard Institution or Bureau of Indian Specification shall be applicable.
- 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.
- The manufacturer should submit test certificate of Module.

- Bidder shall have provide Experience certificate from MEDHA for similar work from similar organization.
- Pre-approval are necessary for major component.

For Grid connected solar PV System i.e. 95 kWp at various locations of Talegaon Dabhade Nagar Parishad, Pune the manufacturer has to give the guaranteed generation i.e. to generate 4 units per day per kWp.The evaluation of 300 sunny days per year generation for Solar PV System must be equal to 4 units * 300 sunny days * 95 kWp = 90,000 units/ year.

3. 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 portal ***https://mahatenders.gov.in***.
- The bidder should visit the site & perform technical survey along with concern persons of Talegaon Municipal Council Pune, Maharashtra, and upload the details of the survey on above portal as per the **Format - G** during 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, Employer may at its discretion ask the bidders for clarification of their bid.
- In case bidder does not fulfil 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 mahatenders portal by Employer.
- 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
  - GST registration Certificate
  - PAN Card.
  - Income Tax Returns of previous three assessment years
- Employer reserves the right to reject or accept any or all tenders without assigning any reasons thereof.
- The work order is not transferable. Subletting is strictly not allowed.

- Employer will not entertain any claim at any stage of successful bidder on the plea that the bidder was not having sufficiently acquainted himself to the site conditions.

4. Cost of Bidding

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

5. Language of Bid

All documents, drawings, instructions, design data, calculations, operation, maintenance and safety manuals, reports, labels and any other date shall be in English Language. The contract agreement and all correspondence between the Employer and the bidder shall be in English language. Supporting documents and printed literature furnished by the bidder if provided in another language it shall be accompanied by an accurate translation of the relevant passages in the English language duly authenticated and certified by the bidder (exception for bidders from Maharashtra). Supporting materials, which are not translated into English, may not be considered. For the purpose of interpretation and evaluation of the Application, the English language translation shall prevail.

6. 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 A – Technical Bid:

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

- Duly Signed & Stamped each page of Tender Documents.
- Copy of receipt for tender fee.
- Copy of receipt for EMD.
- Copies of certificates with related G.R for EMD exemption
- Registration Certificate issued by MNRE/MJP class A Certifiicate.
- Certificate of incorporation of company issued under company act or by Any other competent authority in case of proprietary /parternership firm
- Copy of PAN.

- Copy of GST registration.
- Copy of SSI registration Certificate.
- Power of attorney; for company's authorized person (**Refer Format - A**)
- Self Certification of No Barr/non failure/blacklisted (**Refer Format - B**)
- Banker's details of bidder (**Refer Format - C**)
- Bidder's Information Sheet (**Refer Format - D**)
- Financial credentials of bidder (**Refer Format - E**), along with scanned copy of IT returns for last three financial years, supporting with summery of balance sheet/ auditor's report (certified by registered CA should be compulsorily enclosed).
- Annual Turnover (certified by registered CA should be compulsorily enclosed).
- Experience for installation and commissioning of SPV power plants / list of projects (**Refer Format - F**). Along with scanned copies of work / purchase orders received for completed projects.
- Site visit report (**Refer Format - G**) (Duly filled with Signatured & Stamped by Electrical Executive (Talegaon Dabhade Municipal Council,)/Chief Officer (Talegaon Dabhade Municipal Council,), Pune.
- Product technical specifications with applicable standards.
- **Bidder must submit the address of registered office/service centre**
- Copies of warranty certification of equipments/ components to be enclosed (on Letter head).

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. While submission of bidder should ensure that the size of the bid will not go beyond 50 MB. In case the EMPLOYER/Employer will not able to download bids due to big size of file, then bidder will be responsible for that condition.

Part B - Financial bid

Financial Bid shall contain

- The bidder should quote the price as against total tender estimate as shown in the tender document.(in BoQ only)
- The price quoted in the bid will be inclusive of all taxes, GST, duties, insurance and all incidental charges for successful design, supply, installation, commissioning along with comprehensive maintenance for five years of Solar PV Power Plant on the turn key basis.
- 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.

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

A). EARNEST MONEY DEPOSIT:

- The Earnest Money Deposit of Rs. 45,900/- should be paid online through respective portal. EMD Exemption certificate is allowed as per govt. 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.
- Tender without Earnest Money Deposit will be out rightly rejected

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, EMPLOYER shall have full right to claim damages thereof in addition to the forfeiture of EMD.

C). SECURITY DEPOSIT:

- The Bidder shall furnish security deposit at 3% of the total contract value within 10 days from the date of issue of work order (including Sunday and public holiday) online in favour of TALEGAON DABHADE MUNICIPAL COUNCIL payable at Pune or Bank Guarantee from any Nationalised bank will also be accepted against security deposit. The same needs to be submitted in Office during acceptance of work order and agreement between beneficiary, bidder and Employer.
- 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.
- The security deposit shall be liable to be forfeited wholly or partly at the sole discretion of the Employer, if the Bidder either fails to execute the

work of above projects or fails to fulfil the contractual obligations or fails to settle in full his dues to Employer.

- In case of premature termination of the contract, the security deposit will be forfeited and the Employer 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.
- The Employer is empowered to recover from the security deposit for any sum due or any other sum that may be fixed by the Employer 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.
- The security deposit shall be released to the Bidder only after contract/work is completed to the satisfaction of the Employer.

8. PRICE VARIATION:

The Project cost shall be inclusive of all duties and taxes, GST, insurance etc. The prices quoted by the firm shall be complete in all respect and no price variation/adjustment shall be payable by Employer. However, all taxes and statutory fees as applicable at the time of execution for completion of the project will have to be borne by the successful bidder only.

9. JURISDICTION:

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

10. Period of Validity of Bid

- Bids will remain valid for **90 days** after the date of opening of Technical Bid.
- In exceptional circumstances, Employer 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. A Bidder granting the request will not be required nor permitted to modify its bid.

11. 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.
- Employer may at its discretion ask the Bidder to submit the hard copy of any of the document/information submitted on e-tender platform.

12. 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 Employer may, at the discretion, extend this deadline for submission of bids by issuing an addendum, in which case all rights and obligations of EMPLOYER and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

13. Clarification of Bids

- During evaluation of Bids, Employer 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.

14. Pre Bid Meeting:

Pre bid meeting will be called at Talegaon Dabhade Municipal Council to clarify doubts, if any of the bidders after floating of tender on site *https://mahatenders.gov.in* and before submission of final tender document. Any clarification, queries will be entertained in pre bid meeting only. No queries, clarification will be entertained on phone/e-mails or any other means of communication.

15. Preliminary Examination

- The Employer 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 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 EMPLOYER.
- 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.

16. Acceptance or Rejection of Bids

- EMPLOYER 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 of the grounds for the said action.
- 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 Employer and will be black listed.

17. Criteria for Bids evaluation:

Step 1: Test of Responsiveness

- Prior to evaluation of Bids, EMPLOYER 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.

- The EMPLOYER 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 EMPLOYER 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 minimum eligibility (As per mentioned in Part-A Technical Bid) 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, EMPLOYER, 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. No claim / further clarification will be entertained, to the Bidder in case the Representative is fails to attend this meeting.
- The bidder's names, the Bid Prices, total amount of each bid and other details as Employer may consider appropriate, will be announced and recorded by Employer 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 any technical specification as per terms and condition 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.

18. Award Criteria and Award of Contract

Employer 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, provided further that the bidder is determined to be qualified to perform the contract satisfactorily.

19. Corrupt or Fraudulent Practices

Employer requires that Bidders shall observe the highest standard of ethics during the execution of contracts. In pursuance of this policy, Employer 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;
- Employer 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;
- Employer 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.

20. Terms of Payment:

a. Release of 75% of total project cost:

It will be released after supply systems duly certified by Bidder, Officer of EMPLOYER, Pune & authorized person of Beneficiary, along with following documents:

- Joint Inspection Report duly signed by beneficiary (Talegaon Dabhade Municipal Council,), Pune), Bidder representative, EMPLOYER official.
- System Photograph accompanying EMPLOYER official taken during joint inspection.
- Warranty/Guaranty Certificate of materials used in project.
- Serial Wise Test Reports of each panel comprising I-V curve and detail parameters of each panel.
- Test Report of Solar Panels & inverter.

- Comprehensive Maintenance Contract (CMC) document as per clause mentioned in section IV "Technical Specification of SPV Solar Plant" for 5 years on the letter head of bidder.
- RFID Reader must be carried at the time of inspection. The report generated from RFID Tag of each panel at the time of inspection is to be compulsorily submitted.
- EMPLOYER official at their discretion can ask bidder to submit document other than above mentioned, failing to submit the required and above mentioned document, EMPLOYER will have the rights to hold the payment for 60% of total project.
- Test report of Electrical Contractor about installation.

b. Release of 25% of total project cost:

- It shall be released on Successful installation and commissioning of system.
- The evaluation of 300 sunny days per year generation for Solar PV System must be equal to 4 units * 300 sunny days * 95 kWp = 1,14,000/- units/year.

  If system produces units below guaranteed generation as mentioned above then penalty of Rs. 6/- per unit will be levied. Accordingly bidder has to quote.

Deduction:-

i. The TDS at the source will be deducted as per the Govt. rule and regulations.
ii. EMPLOYER will issue necessary certificates of TDS deduction.
iii. Note that if bidder does not provide insurance against Labour and Material EMPLOYER will process insurance at "Director of Insurance" and will deduct 1% of contract value against insurance claimed by them and 1% of contract value deduction against "Labour Welfare Cess" from payment towards successful bidder.

21.TIME FRAME:

The time frame for the completion of work is **150 days** from the date of issue of work order.

Project Timelines (Table 1.0)

Sr. No.	Description	Timeline

1.	Issuance of Letter of Award	Zero date
2.	Signing of Agreement with Government Organization.	within 10 calendar days after Issuance of Letter of Award
3.	Solar power Project Designing, Planning, Material procurement and Testing, Necessary approvals to be taken for the project from competent authority.	within 30 calendar days after Issuance of Letter of Award
4.	Installation of Solar power Project	within 150 calendar days after Issuance of Letter of Award
5.	Commissioning and Acceptance of Solar power project with valid Plant Energy Performance Ratio Testing.	within 180 calendar days after Issuance of Letter of Award

Bidder should follow the project timelines and also bound to complete the progress of project work as per given below mile stones or else he will be liable for Penalty against incomplete milestone. Milestone for execution of project to be submitted within 8 days of acceptance of work order.

Sr. No.	**Milestone**	**Work Status**
1	In 90 days	> 60% Completion of work
2	In 150 days	>80% Completion of work
3	In 180 days	100% Commissioning and Acceptance of Solar power project

22. TIME EXTENSION

- Only 30 days extension will be given in extreme condition the rights of decision for granting time extension will be reserved by EMPLOYER. For further extension of time penalty of 1% of total project cost per week will be levied on the awarded bidder.
- From date of issue of work order, every 15 day's report of work progression needs to be submitted to EMPLOYER. The review of work progression will be taken and necessary altercation can be suggested, delay in work progression or failure to fulfil required altercation may lead to cancellation of work order. The rights for decision will be

reserved by EMPLOYER.

23. PENALTY CLAUSE

- If the systems are not installed and commissioned within the stipulated period as mentioned in the work order the Bidder shall be required to pay penalty of 1/2% (half percent) of balance amount per week, maximum up to 10% of the total cost of the systems and the amount shall be recovered either from the amount due to the Bidder or from Security Deposit.
- If Successful bidder is not able to complete the project in due time the same shall be get done through other contractor at Bidder's risk and cost and the Successful bidder has to bear all the cost incurred against the balance work left by him for the completion of project.
- The performance ratio of the system should be maintained above 75% for 5 years after completion of installation. If the generation is less than this specified performance ratio, the penalty for per kWh of loss of generation evaluated at the end of financial year will be penalized at 1.5 times the unit rate (base rate + overhead charges) that of utility during period of evaluation/CMC.

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 Plants, 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 various locations of Talegaon Municipal Council, Pune 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, MAHARASHTRA ENERGY DEVELOPMENT AGENCY (EMPLOYER) 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 Employer.

d) The selected Bidder is bound to work on the guideline provided by MNRE and EMPLOYER from time to time. Guidelines if issued in future by MNRE or EMPLOYER, the changes proposed will also be applicable without augmentation in project cost till the completion of 5 years period.

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 EMPLOYER 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 to EMPLOYER and

Electrical Executive (Talegaon Dabhade Nagar Parishad)/Chief Executive Officer (Talegaon Dabhade Nagar Parishad), Pune.

g) Bidders should give Guarantee against any manufacturing defects from the date of commissioning up to CMC period. For any manufacturing defects, supplier shall replace defective parts at free of cost during the CMC period within 8 calendar days and shall keep the system functional.

h) Employer 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 Employer will be final. In the event of dispute arising any time, related to this work and document, decision of the General Manager, Divisional Office EMPLOYER, Pune or his nominee shall be final.

j) EMPLOYER 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) EMPLOYER will not pay any interest on any amount, due to the Bidders.

l) During the inspection, if any deviations in Technical Specifications are observed, Employer reserves right to test any solar module / system at any authorized test centre of MNRE. 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, Employer 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 EMPLOYER, 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 the latest best method of construction with all relevant safety standards.

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 found unsatisfactory, he will be disqualified.

t) If any information / confirmation on any point of these tender conditions are required Bidder may contact / write to General Manager, Divisional Office Pune, EMPLOYER, giving tender reference no. etc.

u) In the event of dispute during installation & commissioning of the systems related to the work and documents, decision of the Chief Officer Talegaon Dabhade Municipal Council, shall be final.

v) Chief Officer Talegaon Dabhade Municipal Council,reserves the rights to distribute the work among the Bidders who are eligible and have submitted the offers.

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

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

y) Employer reserves the right to select L2 Bidder i.e. second lowest Bidder to complete the work, if L1 i.e. lowest Bidder fails to fulfil tender conditions or fails to complete the work.

z) It is binding on the successful Bidder to submit following documents within seven (7) working days from date for of declaration as L1 Bidder (Successful Bidder) at tender portal, in absence of these documents, letter of intent (LOI) will not be issued.

- 3 Sets of techno commercial offer (Original + 2 set copy)
- Colour copy of presentation (company's techno-commercial strength)
- 3 Sets of design engineering drawing / documents for review / approval
- Layout & shadow analysis report, generated utilising MNRE approved / recommended software
- Supporting calculations for selection of system component for desire capacity(Production of power in AC units; for During Peck Hour, Peck Day & Peck Month)
- Single Line Diagram (SLD-Electrical)
- Technical Specifications / Brochure for entire system as per tender document (supporting frame, P V modules, JBs, DC-Cables, Inverters, AC-Cables, Net-meter, Earthlings, L.A. Protection & Safety interlocks and monitoring system etc..)
- Chart- Year wise assured power production for 1st year till end of 25th year
- **Submission of applicable security deposit.**
- Details of execution as well as O & M team along with copy insurance policy
- Project implementation schedule, indicating hold points for necessary approvals / inspections.

2) Communications

- Wherever provision is made for the giving or issue of any notice, instruction, consent, approval, certificate or determination by any person, unless otherwise specified such communication shall be in writing and shall not be unreasonably withheld or delayed.
- Project review coordination meetings between the Beneficiary, EMPLOYER's Representative and Contractor shall be conducted on a regular basis or as and when required by the Employer, at locations decided by the Employer, for Contractor's progress and plans for completing the remaining 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 / EMPLOYER / 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 and mutually agreed between Contractor / Agency and Employer.
- EMPLOYER 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 of SPV system from the date of commissioning for the CMC period by following standard procedure.

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 / EMPLOYER 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 International/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 EMPLOYER, Divisional office Pune &/OR Appointed consultant by EMPLOYER.
- The projects will be inspected for quality at any time during commissioning or after the completion of the project by EMPLOYER, Divisional office Pune &/OR Appointed consultant by EMPLOYER.
- Bidder shall inform EMPLOYER, Divisional office Pune in writing when any portion of the work is ready for inspection (site wise) giving sufficient notice to enable EMPLOYER 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 EMPLOYER certifies in writing to that effect.

- **The cost of Inspection at all stages of project 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 with prior approval from competent Employer authorities.

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, as shall be specified in the contract, 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 Employer'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

- Employer 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 Employer or
- If the Contractor / Agency, in the judgment of Employer has engaged in corrupt or fraudulent practices in competing for or in executing the contract.
- In the event Employer terminates the contract in whole or in part, Employer may procure, upon such terms and in such manner as it deems. Appropriate goods or services similar to those undelivered and the Contractor / Agency shall be liable to Employer 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 cable, telex or facsimile 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/ vibration or any other parameters 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 EMPLOYER.

14) Spares & tools-tackles:

- After completion of installation & commissioning of the power plant, necessary tools & tackles are to be provided free of cost by the bidder for maintenance purpose. List of tools, tackles and spares to be supplied by the bidder should be submitted for approval of specifications and make to Employer.
- 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 to Electrical Executive (Talegaon Dabhade Municipal Council,) /Chief Officer (Talegaon

Dabhade Municipal Council,), Pune. 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.

- The bidder should also provide RFID tag reader for retrieval of data from PV module as and when requested.

15) Danger plates:

- The bidder shall provide at least 8 Danger Notice Plates at each project site 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.

17) 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 all the different components to the Electrical Executive (Talegaon Dabhade Municipal Council,) /Chief Officer (Talegaon Dabhade Municipal Council,), Pune. 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 EMPLOYER/Employer will not be responsible in any way for any claims whatsoever on account of the above.

18) Fire Extinguishers:

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

- Portable fire extinguishers near inverter for fire caused by electrical short circuits
- Sand buckets and stand
- The installation of Fire Extinguishers should confirm to TAC regulations and BIS standards. The fire extinguishers shall be provided near inverterg PCUs as well as on the Roof or site where the PV arrays have been installed.

19) Drawings & Manuals:

- Two sets of Engineering, electrical drawings and Installation and O&M manuals are to be supplied. Bidders shall provide complete technical data sheets for each equipment giving details of the specifications along with make/makes along with basic design of the power plant and power evacuation, synchronization along with protection equipment.
- BIS approved and reputed makes for equipment be used.
- For complete electro-mechanical works, bidders shall supply complete design, details and drawings for approval to the Electrical Executive (Talegaon Dabhade Municipal Council,) /Chief Officer (Talegaon Dabhade Municipal Council,), Pune before progressing with the installation work.
- Successful bidder to submit the design engineering documents, design, Calculations & Drawings of all works within 10 days after issue of work order for review & approve by Appointed consultant by Employer the procurement and utilization of materials/Equipment to be done only after approval by Employer or it's representative.

20) Planning and Designing:

- The bidder should carry out Shadow Analysis of the site and accordingly design strings & arrays layout considering optimal usage of space, material and labour. The bidder should submit the array layout drawings along with Shadow Analysis Report to the Employer for approval.
- Employer 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.
- The bidder shall submit preliminary drawing for approval & based on any modification or recommendation, if any. The bidder shall submit three sets and soft copy in CD of final drawing for formal approval to proceed with construction work.

21) Drawings to be furnished by Bidder after Award of Contract

The Selected Bidder shall furnish the following drawings on Award of work order and obtain its approval

- General arrangement and dimensioned layout

- Schematic drawing showing the requirement of SPV panel, Power conditioning Unit(s)/ Inverter, Junction Boxes, AC and DC Distribution Boards, meters etc.
- Structural drawing it's GTP along with foundation details for the structure. Bidder should submit structural design approved by structural engineer/architect.
- Itemized bill of material for complete SPV plant covering all the components and associated accessories.
- Layout of solar Power Array, single line diagrams.
- Shadow analysis of the site.

22) 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 during the execution period and CMC period.

SPECIAL INSTRUCTIONS

- Must have field service setup to provide good after sale services including necessary repair and maintenance in the state of Maharashtra, to carry out repair/replacement work within 24 hours from the time of reporting the fault as and when required over the period of 5 years i.e CMC period. Registered Office, service and dealership network in Jurisdiction of Pune division is must. Accordingly bidder has to submit the details thereof.

- The earthing flats can be connected to the ground in certain sections of the building.
- Length of the cables should be considered up to the metering panel.
- **Bidder must submit the address, company personnel details of registered office within periphery of Pune division which will be responsible for conducting O&M within the CMC period briskly.**

SECTION-IV
BRIEF INFORMATION ABOUT SITE AT VARIOUS LOCATIONS AT
Talegaon Dabhade Municipal Council,

Location: - The Site location is situated at centre of Talegaon City which is approximate 36 KM from Shivajinagar Bus Stand.

Connectivity: Air: - Site location is 40 KM away from Pune Airport.

Rail: - Site location is 35 KM away from Pune Station. It is well connected with all the important cities in India.

Sr. No.	Name of the building	Proposed capacity (KWp)	Estimated amount of the project
1	Shrimant Sardar Ajeetshiaraje Dabhade (Sarkar) Shopping Center A Wing at Maruti Mandir Chowk	30 (KWp)	14,40,000/-
2	Shrimant Sardar Ajeetshiaraje Dabhade (Sarkar) Shopping Center B Wing at Maruti Mandir Chowk	30 (KWp)	14,40,000/-
3	Shrimant Sardar Ajeetshiaraje Dabhade (Sarkar) Shopping Center C Wing at Maruti Mandir Chowk	30 (KWp)	14,40,000/-
4	Nathubhau bhegade Patil school No.1	2 (KWp)	1,08,000/-
5	Shri. Sant Dnyaneshwar Primary and Secondary School	3 (KWp)	1,62,000/-
	Total	**95** (KWp)	**45,90,000/-**

SECTION-IV
TECHNICAL SPECIFICATION OF SPV POWER PLANT
95 kWp-DC Grid Connected)

DEFINITION

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

General System

1. The operating life of the plant shall be minimum 25 years.
2. The plant shall feed AC power to the Low Tension (LT) / High Tension (HT) distribution grid power supply through adjacent substation.
3. The plant shall monitor solar generated energy using plant DC / AC energy meter/Bidirectional energy meter independent of load energy monitoring. Remote monitoring facility must be made available.
4. The plant shall consist of PV array, fixed PV array support structure, String/Array combiner boxes, DC cabling, DC distribution box, Inverter, AC cabling, AC distribution box, plant AC energy meter, load energy meter and data acquisition system.
5. The individual Solar PV array shall be installed on existing roof top of the building using fixed PV array support structure.
6. The individual string / array combiner boxes and DC cabling shall be installed on roof top of the building.
7. The inverter shall be installed in the control room / open space provided in the building as per requirement of beneficiary and site requirement.
8. The DC and AC distribution boxes, DC and AC cabling, energy meters and data acquisition system shall be installed in the control room / open space provided in (or near) the building.

PV Array

The total solar PV array capacity should vary with respect to different locations and project capacity comprise of solar polycrystalline modules with minimum capacity of 300Wp and above wattage. Module capacity less than minimum

300Wp should not be supplied. The module type must be qualified as per IEC 61215 latest edition for polycrystalline silicon or IEC 61646 for other latest technology. SPV module conversion efficiency should be equal to or greater than 16% under STC. Modules must qualify to IEC 61730 Part I and II for safety qualification testing. Certificate for module qualification from IEC TIER - I or equivalent should be uploaded. Self undertaking must be submitted from manufacturer/ supplier that the modules being supplied are as per above.

1. The PV modules used should be made in India.
2. The peak power rating of the Solar PV array under Standard Temperature Conditions (STC) shall be equal to the peak power rating of the plant.
3. The PV array shall consist of framed multi-crystalline.
4. Individual PV modules rating should be of minimum 300 Wp at STC. And cumulative quantity shall be matching to rated output at application end.
5. The rated maximum power rating of PV modules should have positive tolerance in range of 0 to +3%. And negative temperature co-efficient of power for PV modules should be less than or equal to 0.45% per degree C. 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 more than 3 (three) percent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
6. A suitable number of Solar PV modules shall be connected in a series string. A suitable number of series strings shall be connected in parallel to formulate a series parallel array.
7. The PV Array shall be designed to match the inverter input specifications.
8. The module shall be provided with junction box with provision of min. 3 Nos. of by-pass diodes and external MC4 type or equivalent plug-in connectors. The junction box should have hinged, weatherproof lid with captive screws and cable gland entry points & should be IP 65 rated.
9. The front surface of the module shall consist of impact resistant, low iron and high transmission toughened glass.
10. The module frame shall be made of corrosion resistant material electrically compatible with structural material used for mounting the modules.
11. Each PV module manufactured in India must have RF identification tag (RFID) compatible with MNRE requirements. (Traceability requirement)
12. DC negative conductor shall be bonded to the ground via Ground Fault Detector Interrupter (GFDI). The grounding point shall be as close as possible to the PV Array.
13. 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 with associated electrical connectivity with cells of the module. The box shall have hinged, weather proof lid with captive screws and cable gland entry points or may be of sealed type and IP65 rated.

14. Necessary I-V curves at 25^0C, 45^0C, 60^0C and at NOC are required to be furnished. Offers to provide PV module warranty of 25 years with not more than 20% degradation in performance/output over 25 years.
15. The PV module must have 10 years free replacement guarantee against material defect or craftsmanship.
16. Name of the manufacturer of PV module; name and manufacturer of the solar cell; month and year of manufacture; I-V curve, wattage, Im, Vm, FF for the module; unique serial no & model no; date & year of obtaining IEC PV module qualification certificate are required to be furnished.
17. The maximum degradation of PV modules should not exceed 1% per year.

Warranties:

Material Warranty:

a). 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 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 manufacturer will repair or replace the solar module(s), at the Owners sole option.

Performance Warranty:

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

Inverter

The PCU required shall be of 100 KVA to convey DC power produced by SPV modules into AC power and adjust the voltage & frequency levels to meet the local grid conditions.

Common Technical Specification

Control Type: Voltage source, microprocessor assisted, output regulation.

Output voltage: 3 phase, 415 V AC (+12.5%, -20% V AC)

Frequency: 50 Hz (+3 Hz, -3 Hz)
Continuous rating: 100+KVA with Import/Export net metering
Normal Power: 100+KVA

Total Harmonic Distortion: less than 3%

Operating temperature Range: -25 ^{o}C to 60 ^{o}C

Humidity: 95 % Non-condensing

Housing cabinet: PCU to be housed in suitable switch cabinet, IP-20(Minimum) for indoor IP-65(Minimum) for outdoor
PCU efficiency: 98% and above at full load.

PF: > 0.9 (0.9 lead to 0.9 logging)

Other important Features/Protections of PCU:

1. Mains (Grid) over-under voltage and frequency protection as per CEA regulation.

2. Over load capacity (for 10 sec) should be 200% of continuous rating.

3. The PCU shall be self commuted and shall utilize a circuit topology and components suitable for meeting the specifications listed above at high conversion efficiency and with high reliability.

4. The PCU shall be provided with MPPT (Maximum Power Point Tracing) features, so that maximum possible power can be obtained from the PV module.

5. The PCU shall be self commuted and shall utilize a circuit topology/ DSP technology to meet the specifications listed above at high conversion efficiency and with high reliability. The PCU shall give the preference to feed the Loads from Solar Energy being produced and shall draw the additional power from mains to meet the load requirements in the case load is more than solar energy being produced. Conversely it should feed the solar power to the Grid if the load is less than the solar energy generated.

6. Full proof protection against grid islanding which ensures that the PV power and the grid power get disconnected

7. 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.

8. 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. immediately in the event of grid failure 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.

9. The PCU shall be capable of operating in parallel with the grid utility service and shall be capable of interrupting line-to-line fault currents and line-to-ground fault currents.

10. The PCU shall be able to withstand an unbalanced output load to the extent of 50%.

11. The PCU shall go to the shut down/standby mode with its contacts open under the following conditions before attempting and automatic restart after an appropriate time delay in insufficient solar power output

12. (a) Utility-Grid Over or Under Voltage

The PCU shall restart after an over or under voltage shutdown when the utility grid voltage has returned to within limits for a minimum of two minutes and as per CEA regulation.

(b) Utility-Grid Over or Under Frequency:

The PCU shall restart after an over or under frequency shutdown when the utility grid voltage has returned to the within limits for minimum of two minutes. The permissible level of under/over voltage and under/over grid frequency is to be specified by the tenderer.

13. The PCU shall not produce Electromagnetic interference (EMI) which may cause malfunctioning of electronic and electrical instruments including communication equipment, which are located within the facility in which the PCU is housed.

14. Communication Modbus protocol with LAN / WAN options along with remote access facility and latest data monitoring systems.

15. The inverter with MPPT shall be used with the power plant.

16. The sine wave output of the inverter shall be suitable for connecting to 415V, 3 phase AC LT voltage grid as per grid standard. The inverter shall incorporate transformer isolated output (transformer-less inverters shall be used with suitable external transformers), grid islanding protection disconnection of grid & PV power in case of failure of Grid supply suitable DC / AC fuses / circuit breakers and voltage surge protection. Fuses used in the DC circuit shall be DC rated.

17. The inverter shall have internal protection against any sustained faults and/or lightening in DC and mains AC grid circuits.

18. The peak inverter efficiency inclusive of built-in isolation transformer shall exceed 94%. (Typical commercial inverter efficiency normally more than 97%, and transformer efficiency is normally more than 97%)

19. The kVA ratings of inverter should be chosen as per the PV system wattage.

20. The output power factor should be of suitable range to supply or sink reactive power.

21. Inverter shall provide panel for display of PV array DC voltage, current and power, 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. Remote monitoring of inverter parameters should also be available.

22. The inverter shall include adequate internal cooling arrangements (exhaust fan and ducting) for operation in a non-AC environment.

Factory Testing:

1. The PCU shall be tested to demonstrate operation of its control system and the ability to be automatically synchronized and connected in parallel with a utility service, prior to its shipment.
2. Operation of all controls, protective and instrumentation circuits shall be demonstrated by direct test if feasible or by simulation operation conditions for all parameters that can not be directly tested.
3. Special attention shall be given to demonstration of utility service interface protection circuits and functions, including calibration and functional trip tests of faults and isolation protection equipment.
4. Operation of start up, disconnect and shutdown controls shall also be tested and demonstrate. Stable operation of the PCU and response to control signals shall also be tested and demonstrated.
5. Factory testing shall not only be limited to measurement of phase currents, efficiencies, harmonic content and power factor, but shall also include all other necessary tests/simulation required and requested by the Purchasers Engineers.
6. Tests may be performed at 25%, 30%, 75% & 100% of the rated nominal power.
7. A Factory Test Report (FTR) shall be supplied with the unit after all tests. The FTR shall include detailed description of all parameters tested qualified and warranted.

The photovoltaic panels with more than 320 Wp each, pre dispatch inspection at cell level with module efficiency of more than 16%, EL spectrum at module level before shipment to site if required needs to be arranged at bidder own cost.

PROTECTIONS:

LIGHTNING PROTECTION

The SPV power plants shall be provided with lightning & over voltage 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 NFC 17-102:2011 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

1. PV array, DC equipment, Inverter, AC equipment and distribution wiring shall be earthed as per IS: 3043 - 1987.
2. Equipment grounding (Earthing) shall connect all non-current carrying metal receptacles, electrical boxes, appliance frames, chassis and PV panel mounting structures in one long run. The grounding wire should not be switched, fused or interrupted.
3. The complete earthing system shall be electrically connected to provide return to earth from all equipment independent of mechanical connection.
4. The equipment grounding wire shall be connected to PV power plant.
5. A separate grounding electrode shall be installed using earth pit per power plant. Test point shall be provided for each pit.
6. An earth bus and a test point shall be provided inside each control room.
7. Earthing system design should be as per the standard practices and as per latest IEC standard.

CABLES & WIRES

- Cabling in the yard and control room: Cabling in the yard shall be carried out as per IE Rules. All other cabling above ground should be suitably mounted on cable trays with proper covers.

- Wires: Only FRLS (Fire Retardant Low Smoke) copper wires of appropriate size and of reputed make shall have to be used.
- Cables Ends: All connections are to be made through suitable cable/lug/terminals; crimped properly & with use of Cable Glands.
- Cable Marking: All cable/wires are to be marked in proper manner by good quality ferule or by other means so that the cable can be easily identified. Any change in cabling schedule/sizes if desired by the bidder/supplier be got approved after citing appropriate reasons, All cable schedules/layout drawings have to be got approved from the purchaser prior to installation. All cable tests and measurement methods should confirm to IEC 60189.

Electrical Safety, Earthing Protection

Electrical Safety

- Internal Faults: In built protection for internal faults including excess temperature, commutation failure and overload and cooling fan failure (if fitted) is obligatory.
- Over Voltage Protection: Over Voltage Protection against atmospheric lightning discharge to the PV array is required. Protection is to be provided against voltage fluctuations and internal faults in the power conditioner, operational errors and switching transients.
- Earth fault supervision: An integrated earth fault device shall have to be provided to detect eventual earth fault on DC side and shall send message to the supervisory system.
- Cabling practice: Cable connections must be made using PVC Cu cables, as per BIS standards. All cable connections must be made using suitable terminations for effective contact. The PVC Cu cables must be run in GL trays with covers for protection.
- Fast acting semiconductor type current limiting fuses at the main bus bar to protect from the grid short circuit contribution.
- The PCU shall include an easily accessible emergency OFF button located at an appropriate position on the unit.

The PCU shall include ground lugs for equipment and PV array grounding.
All exposed surfaces of ferrous parts shall be thoroughly cleaned, primed, and painted or otherwise suitably protected to survive a nominal 30 years design life of the unit.

- The PCU enclosure shall be weatherproof and capable of surviving climatic changes and should keep the PCU intact under all conditions in the room where

it will be housed. The INVERTER shall be located indoor and should be either wall / pad mounted. Moisture condensation and entry of rodents and insects shall be prevented in the PCU enclosure.

- Components and circuit boards mounted inside the enclosures shall be clearly identified with appropriate permanent designations, which shall also serve to identify the items on the supplied drawings.
- All doors, covers, panels and cable exits shall be gasket or otherwise designed to limit the entry of dust and moisture. All doors shall be equipped with locks. All openings shall be provided with grills or screens with openings no larger than 0.95 cm. (about 3x8 inch).
- In the design and fabrication of the PCU the site temperature (5° to 55°C), incident sunlight and the effect of ambient temperature on component life shall be considered carefully. Similar consideration shall be given to the heat sinking and thermal for blocking diodes and similar components.

EARTHING PROTECTION

Each array structure of the PV yard should be grounded properly. In addition the lighting arrester/masts should also be provided inside the array field. Provision should be kept be provided inside the array field. Provision should be kept for shorting and grounding of the PV array at the time of maintenance work. All metal casing/shielding of the plant should be thoroughly grounded in accordance with Indian electricity Act. /IE Rules. Earth resistance should be tested in presence of the representative of NRHM after earthing by calibrated earth tester. PCU ACDB & DCDB should be earthed properly.

Danger boards should be provided as and where necessary as per IE Act/IE rules as amended up to date. Three sign age shall be provided one each at control room, solar array area and main entry from administrative block.

Balance of Systems (BoS)

String / Array combiner boxes shall incorporate DC string circuit breakers, DC array disconnect switch, lightning and over voltage protectors, any other protection equipment, screw type terminal strips and strain-relief cable glands.

1. All DC and AC cables shall be terminated using suitable crimped cable lugs/sockets and screw type terminal strips. No soldered cable termination shall be accepted.
2. Only terminal cable joints shall be accepted. No cable joint to join two cable ends shall be accepted All the terminals used for cable joints shall be 1000VDC rated only.
3. Suitable Ground Fault Detector Interrupter (GFDI) shall be incorporated either with the inverter or with the array combiner box.

4. String/Array combiner boxes shall be secured onto walls or metal structures erected separately on the terrace.
5. Conduits / concealed cable trays shall be provided for all DC cabling on the Roof top. Conduits / concealed cable trays shall be adequately secured onto the roof top / wall.
6. The AC cable type shall be XLPE insulated, suitably armoured, 1100V grade multi-stranded copper conductor. Appropriate colour coding shall be used.
7. For the DC cabling, XLPE or, XLPO insulated and sheathed, UV-stabilized single core multi-stranded flexible copper cables shall be used; Multi-core cables shall not be used.
8. The DC and AC cables of adequate electrical voltage and current ratings shall be also rated for 'in conduit wet and outdoor use'.
9. The total DC cable losses shall be maximum of 2% of the plant rated DC capacity over the specified ambient temperature range.
10. The DC and AC cable size shall be selected to maintain losses within specified limits over the entire lengths of the cables.
11. DC cables from array combiner box on the rooftop to DC distribution box in the control room and DC/ AC cabling between inverter and distribution boxes shall be laid inside cable duct where available or secured with conduits/concealed cable trays where duct is not available.
12. The DC and AC distribution boxes shall be wall mounted inside control room/open space.
13. DC distribution box shall incorporate DC disconnect switch, lightening surge protectors, any other protection equipment, screw type terminal strips and strain-relief cable glands.
14. AC distribution box shall incorporate AC circuit breaker, surge voltage protectors, any other protection equipment, plant energy meter, screw type terminal strips and strain-relief cable glands.
15. The total AC cable losses shall be maximum of 1% of the plant AC output over the specified ambient temperature range.
16. All cable conduits shall be GI/HDPE type.
17. All cable trays shall be powder coated steel or GI or equivalent.
18. For DC side installation if armoured cable use at thermoplastic insulated polyamide gland to be used to hold cable. The armoured cable should not be lathed at any point on the DC side.

Civil

1. For structural purpose, the panels plus support system that works as a distortion-free integral structural unit.

2. The panel assembly should at most 5m x 5m in plan area. The max height of panel above roof surface does not exceed 1.2 m.
3. The vertical projection area of the longer side of the panels does not exceed W/100 in sq m where W is the gross load of the panel assembly in kg (weight of panels, connections, frames, bracings, pedestals, wiring, circuitry etc.).
4. PV array shall be installed in the space free from any obstruction and/or shadow.
5. Drainage and roof treatment should not affected by the installation.
6. PV array shall be installed utilizing maximum space to minimize effects of shadows due to adjacent PV panel rows. The gross weight of the panel assembly should at most 45 kg/sq m (W divided by the plan area).
7. Adequate spacing shall be provided between two panel frames and rows of panels to facilitate personnel protection ease of installation, replacement, cleaning of panels and electrical maintenance. There is at least 1m clear spacing all around the panel assembly (panel edge to panel edge between assemblies, and panel edge to parapet wall / room on sides).
8. The maximum column spacing should be 8.5 m c/c or less. The pedestal is placed directly on the roof, over existing roof treatment, without making any structural connection to the roof surface.
9. The panel assembly should have at least 4 pedestal supports. The minimum spacing between pedestals is 2.0 m c/c in any direction. Each pedestal is made of cement concrete. Each pedestal can transmit at most 200 kg load on roof. The plan dimension of pedestal does not exceed 450mm x 450 mm, and height does not exceed 300mm.
10. Ample clearance shall be provided in the layout of the inverter and DC / AC distribution boxes for adequate cooling and ease of maintenance.
11. The Supplier will supply and install required size of Water Tank, pump, pipe etc. for cleaning the PV modules.
12. The supplier shall specify installation details of the PV Panel assembly with appropriate diagrams and drawings. Such details shall include, but not limited to, the following;

a) Determination of true south at the site;

b) Array tilt angle to the horizontal, with permitted tolerance;

c) Details with drawings for fixing the modules;

d) Details with drawings of fixing the junction/terminal boxes;

e) Interconnection details inside the junction/terminal boxes;

f) Structure installation details and drawings;

g) Electrical grounding (earthing);

h) Inter-panel / Inter-row distances with allowed tolerances; and

i) Safety precautions to be taken.

The array structure shall support SPV modules at a given orientation and absorb and transfer the mechanical loads to the roof top columns properly. All nuts and bolts shall be of very good quality stainless steel. The panel support and panel-to-support connection both must be designed by vendor to withstand adequately high wind forces. Civil Works permission does not guarantee safety against flying/falling panels in the event of a storm or any other accident.

Mechanical

1. PV panel assembly may consist of different number of modules with maximum of 10 PV modules.
2. Each panel assembly shall incorporated one bird repellent spike at a level higher than the panel upper edge. The location of the spike should be selected for minimum shadow effect.
3. Support structure of panel assembly shall be fabricated using corrosion resistant GI or anodized aluminium or equivalent metal sections.
4. Array support structure welded joints and fasteners shall be adequately treated to resist corrosion.
5. The support structure shall be free from corrosion when installed.
6. PV modules shall be secured to support structure using screw fasteners and/or metal clamps. Screw fasters shall use existing mounting holes provided by module manufacturer. No additional holes shall be drilled on module frames.

   Module fasteners / clamps shall be adequately treated to resist corrosion.
7. The support structure shall withstand wind loading of up to 150 km/hr.
8. Adequate spacing shall be provided between any two modules secured on panel assembly for improved wind resistance.
9. The structure shall be designed to withstand operating environmental conditions for a period of minimum 25 years.
10. It is required to design the grid structure (on which PV module will be installed) in such a way that all loads are transferred to the existing columns of

the buildings. Such grid design should be presented to EMPLOYER, which will be certified by structural engineers from beneficiary if made available.

11. The panel assembly structure should be installed in a manner to leave sufficient space for repair and maintenance aspects of the roof tops, particularly for leakages.

12. Installation of panel assembly should not tamper with the water proofing of roofs.

Electrical:

1. LT distribution grid specifications 415V +/- 5%, 50Hz and frequency variation as per IE rules.

2. The output of the inverter shall be transformer isolated and shall be fed into 415V, 3 phase AC LT grid supplied via LT Air circuit Breaker.

3. The inverter output shall be connected to LT line prior to the LT/DG changeover switch. The mandatory islanding protection provided by inverter shall isolate the Solar PV power plant.

4. The time of day (TOD) 3 phase, digital AC load energy meter shall be installed in the Main Distribution Box to monitor energy drawn by building load and in the AC distribution box to monitor energy generated by Solar PV power plant.

5. The load energy meter operation shall be completely independent of the plant AC energy meter.

6. The energy meters shall be provided with communication interface and necessary data cables for remote monitoring.

ARRAY STRUCTURE

a) Hot dip galvanized (minimum of 120 Microns) mounting structures may be used for mounting the modules / panels / arrays. Each structure should have angle of inclination as per the site conditions to take maximum insolation. However to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.

b) The Mounting structure shall be so designed to withstand the speed for the wind zone of the location where a PV system is proposed to be installed. Suitable fastening arrangement such as grouting and calming should be provided to secure the installation against the specific wind speed.

c) The mounting structure steel shall be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance of latest IS 4759.

d) Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. Aluminium structures also can be used which can withstand the wind

speed 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.

- The bidder need to supply suitable structures based on the quality of roof and considering the load baring capacity of the roof / civil structures of the proposed building.
- A provision should be clearly made for every half monthly cleaning as per site condition schedule of the SPV panels and the successful bidder shall maintain the cleaning record in the Electrical Executive (Talegaon Municipal Council)/Chief Officer (Talegaon Municipal Council), Pune.
- Necessary trimming of the nearby trees casting shadow between 9am to 5pm of any day of the year should be done by the bidder with approval of Electrical executive (Talegaon Municipal Council)/Chief Officer (Talegaon Municipal Council), Pune.

Data Acquisition System

1. Remote Data Monitoring System shall be provided for 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. The following parameters are accessible via the operating interface display in real time separately for solar power plant:
   i. AC Voltage.
   ii. AC Output current.
   iii. Output Power
   iv. Power factor.
   v. DC Input Voltage.
   vi. DC Input Current.
   vii. Time Active.
   viii. Time disabled.
   ix. Time Idle.

x. Power produced
xi. Protective function limits (Viz-AC Over voltage, AC Under voltage, over frequency, under frequency ground fault, PV starting voltage, PV stopping voltage.

6. Data Acquisition System shall have real time clock, data storage capacity to record data round the clock for a period of minimum one year.
7. Computerized AC energy monitoring shall be in addition to digital AC energy meter and should be calibrated.
8. 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.
9. All instantaneous data shall be shown on the computer screen.
10. Software shall be provided for USB download and analysis of DC and AC parametric data for the plant.
11. Provision for internet monitoring and download of data shall be also incorporated.
12. 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.
13. A data logging system (Hardware and Software) for plant control and monitoring shall be provided along with the inverter.
14. Remote Data Monitoring System or equivalent software at the purchaser location with latest software/hardware configuration and service connectivity for online/real time data monitoring system. Operation and maintenance/data monitoring to be ensured by the supplier. Provision for interfacing these data on Elecrical Executive (Talegaon Dabhade Municipal Council,)/Chief Officer (Talegaon Dabhade Municipal Council,), Pune/Consultant/Expert of Elecrical Executive (Talegaon Dabhade Municipal Council,)/Chief Officer (Talegaon Dabhade Municipal Council,, Pune server and portal in future shall be kept.
15. The bidder should provide clear visible LED based display board in the premises of installation displaying current energy generation, average daily energy generation in last month, last one year and other related weather parameters.
16. 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.
17. Conditioner; this may be achieved through rate of change of current, phase angle, unbalanced voltage or reactive load variants.
18. 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 Over current Earth fault & reverse power in case of the above, cases, tripping time should be less than 15 seconds Response time in case of grid failure due to switch off or failure based shut down should be well within seconds. In case of use of two PCUs capacity suitable equipment for synchronizing the AC out put of both the PCUs to the ACDB/Grid should be provided. Automatic reconnection after grid failure should restore.

19. 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.

Operating Environment

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.

GRID CONNECTIVITY AND METERING ARRANGEMENT (for 95 kWp Grid connected SPV at various locations of Talegaon Dabhade Municipal Council, Pune.

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**
95 kWp at Various locations of **Talegaon Dabhade Municipal Council**, Pune	440 VAC

Utilities may have voltage levels other than above; Necessary sanctions & Approvals should be obtained from MSEDCL before finalization of the voltage level and specification is made accordingly.

a) The bidirectional electronic energy meter (Net-meter) shall be Supplied and installed for the measurement of import/Export of energy in compliance with Utility requirements.
b) The bidder must take approval/NOC from the Concerned MSEDCL/Utility for the connectivity, technical feasibility, and synchronization of SPV plant with distribution network and submit the same to the Elecrical Executive (Talegaon Municipal Council)/Chief Officer (Talegaon Municipal Council), Pune before commissioning of SPV plant.
c) Reverse power relay shall be provided by bidder (if necessary) and decision of EMPLOYER/Employer will be final at no extra additional cost.
d) All permissions for grid connectivity with supply of all its equipment, material, installation, inspection and statutory fees etc. are in bidder scope only and will be as per the approval from utility competent authority.

Grid Islanding

a) 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.
b) A manual disconnect 4pole 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.

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 Power Performance Ratio Testing During Commissioning:
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 75% at the time of inspection for initial commissioning acceptance to qualify for release of applicable payments. Minimum CUF of 15% should be maintained for a period of 5 years for fulfilling one of the conditions for release of payment against BG. The bidder

should send the periodic plant output details to EMPLOYER for ensuring the CUF. The PR will be measured at Inverter output level during peak radiation conditions. Correction shall be applied based on available solar radiation.

Plant Power Performance Ratio Testing for Five Years:

It is mandatory for the successful bidder to calculate a Performance ratio on yearly basis using below formulas:

1) Performance Ratio (PR) = (Actual Energy produced in a year (kWh)) / (Actual Energy modelled (kWh)).
2) Performance Ratio (PR) = Energy produced in a year (kWh) / Irradiance at installed location (kWh/m^2 * Efficiency)

Whichever is higher will be considered.

Plant Energy Performance Ratio Testing

The overall energy performance ratio of the system shall exceed 75%. (Sum total of the system energy losses shall not exceed 25%). For example :- Global solar insolation in the Plane of Array (PoA) is 5 kWh/ m^2 (5 Peak Sun Hours) for the day; for 100kW PV power plant AC energy output shall be minimum of **375 kWh** (100 kW x 0.75 x 5 hrs.) for the day.

Operation and Maintenance (O&M)

1. Cleaning of solar PV modules with soft 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, transformer, 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 within 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.

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 10years and 80% at the end of 25 years.

(iii) During the CMC period, MNRE / EMPLOYER / users will have all the rights to cross check the performance of the Solar PV Power Plant. EMPLOYER 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, EMPLOYER will take the necessary action. The decision of Employer in this regard will be final and binding on the bidder.

Warranties and Guarantees

1. Solar Modules: Workmanship/ product replacement for 5 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 10 years

4. Power Evacuation and Metering Equipment: Workmanship/product replacement for 10 years, service for 25 years

5. BoS: Parts and Workmanship for 5 years, service for 10 years.

6. Power Plant Installation : Workmanship for 5 years, service for 10 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. IEC 61439 part I and Part 2: for all PV generator junction boxes (array junction boxes/ combiner boxes and monitoring boxes)
   7a: IEC 60364-4-41: Fault Protection & Assembly
   7b: IEC 61439 part-1 and part-2: for all PV Generation Junction Boxes (Array Junction Boxes/ Combiner Boxes/ Monitoring Boxes)
   7c: IEC 60695-2-11: Flammability & safe Extinguishing Characteristics for enclosures used for array junction Boxes / combiner Boxes and monitoring Boxes.
   7d: IEC 60068-2-2: Verification for thermal stability of Enclosures.
   7e: IEC 62208-2002: Mechanical Impacts
   7f: IEC 60634-7-712 clause 712-413-2 for protects class II for enclosures
8. String/array junction boxes: IP65, Protection Class II, IEC 61439 & Fault protection @& assembly IEC- 60364-4-4.
9. Surge Protection Devices: Type 2, DC 1000V rated.
10. PV module/string/string combiner box interconnects:MC4 compatible DC1000V rated.
11. The central inverter/ string inverter shall be rated for IP54.
    11a: The DCDB's shall be rated for IP65
    11b: The ACDB's shall be rated for IP65/ IP22 rating
    11c: All ACDB's shall have a design considering simultaneity factor 1 circuits should be mounted inside to avoid thermal imbalance. Every

outgoing MCB shall have a minimum of 9mm and a max of 18mm gap with the adjacent MCB.

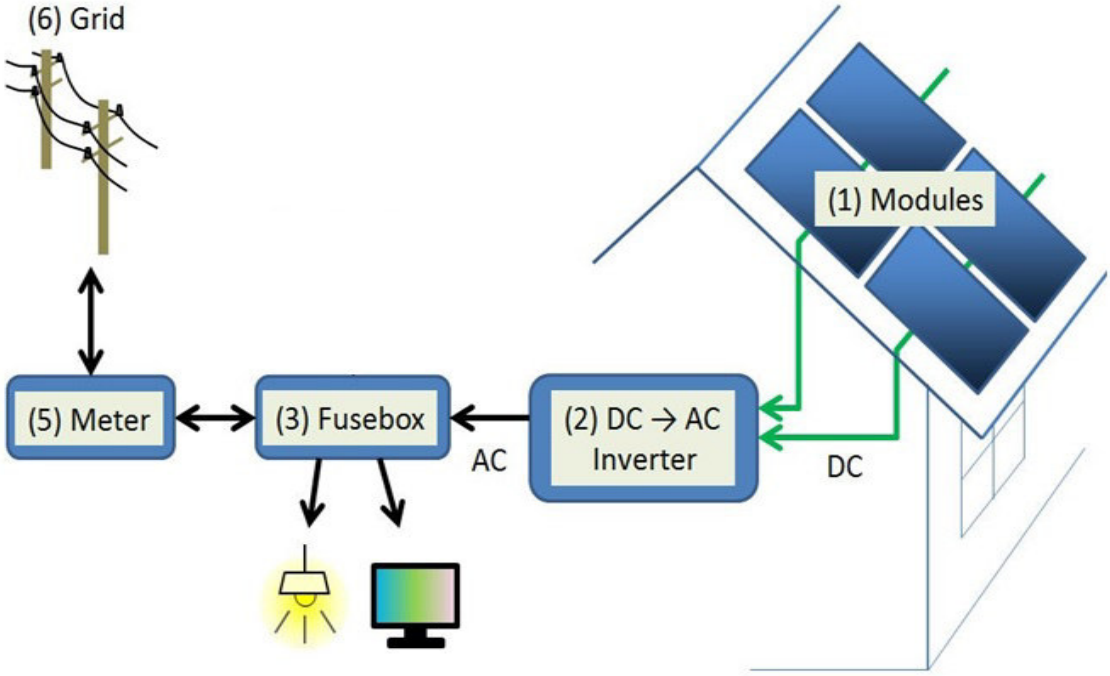
11d:The ACDBS shall fulfill IEC 61439 part –1 and part-2.

11e. All ACDBs and DCDBs shall be made of Thermoplastic Polycarbonate for optimum safety & highest degree of insulations.

12. The date acquisition systems shall be rated for IP54.
13. All DC and AC cables, conduits, cable trays, hardware: relevant IS.
14. Earthing System: relevant IS as per safety standard.
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.

SPECIAL INSTRUCTIONS

- DC cables of 1000V rating and AC cables of 1100V AC rating are to be considered.
- The energy meters shall be provided with communication interface and necessary data cables for remote monitoring.
- The inverters should be connected through Wi-Fi to monitor daily, monthly & yearly generation data from remote locations.
- Each inverter station should have provision of fire safety devices as per the industrial practices.
- The inverter stations should be adequately illuminated through lighting of recommended lux level.


(6) Grid
(1) Modules
(5) Meter
(3) Fusebox
(2) DC → AC
Inverter
AC
DC

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:

A). Solar PV Modules/Panels		
1	IEC 61215/ IS 14286	Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV) Modules
2	IEC 61701	Salt Mist Corrosion Testing of Photovoltaic (PV) Modules
3	IEC 61853- Part 1 /IS 16170: Part 1	Photovoltaic (PV) module performance testing and energy rating –:Irradiance and temperature performance measurements, and power rating
4	IEC 62716	Photovoltaic (PV) Modules – Ammonia (NH3) Corrosion Testing(As per the site condition like dairies, toilets)
5	IEC 61730-1,2	Photovoltaic (PV) Module Safety Qualification – Part 1:Requirements for Construction, Part 2: Requirements for Testing
B). Solar PV Inverters		
1	IEC62109-1/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)
2	IEC/IS 61683 (as applicable)	Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions)
3	IEC 62116/ UL174/ IEEE 1547 (as applicable)	Utility-interconnected Photovoltaic Inverters - Test Procedure of Islanding Prevention Measures
4	IEC 60255-27	Measuring relays and protection equipment – Part 27: Product safety requirements
5	IEC 60068- 2/IEC 62093(as applicable)	Environmental Testing of PV System – Power Conditioners and Invertors.

C). Fuses		
1	S/IEC 60947(Part1, 2 & 3), EN50521IEC 60269-6	General safety requirements for connectors, switches, circuit breakers (AC/DC): ➢ Low-voltage Switchgear and Control-gear, Part 1: General rules ➢ Low-Voltage Switchgear and Control-gear, Part 2: Circuit Breakers ➢ Low-voltage switchgear and Control-gear, Part 3: Switches, disconnections, switch-disconnections and fuse-combination units. ➢ EN 50521: Connectors for photovoltaic systems – Safety requirements and tests ➢ Low-voltage fuses - Part 6: Supplementary requirements for fuse- links for the protection of solar photovoltaic energy systems.
D). Surge Arrestors		
1	BFC 17 -102: 2011	Lightening Protection Standard
2	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
3	IEC 61643- 11:2011	Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems - Requirements and test methods
E). Cables		
1	IEC 60227 /IS694 IEC 60502 / IS1554 (Part 1 & 2) / IEC69947 (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)
2	BS EN 50618	Electric cables for photovoltaic systems (BT(DE/NOT)258), mainly for DC cables.
F). Earthing /Lightning		
1	IEC 62561 Series (Chemical earthing) (as applicable)	IEC 62561-1Lightning protection system components (LPSC) - Part 1: Requirements for connection components EC 62561-2Lightning protection system components (LPSC) - Part 2: Requirements for conductors and earth electrodes IEC 62561-7Lightning protection system components (LPSC) - Part 7: Requirements for earthing enhancing compounds
G). Junction Boxes		
1	IEC 60529/IEC 61439	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. The junction box should be classified in accordance with table10.2.4 of IEC 61439 for resistance to UV radiation.
H). Energy Meter		
1	S 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)
I). Solar PV Roof Mounting Structure		
1	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,

Chief Officer,
Talegaon Dabhade municipal Council,
Tal Maval Dist Pune.

WHEREAS *[name and address of Contractor]*_____

(hereinafter called "the **Contractor**") has undertaken, in pursuance of **Work Order No.** _____ **Tender No.**

for works _____**,** dated _____ 2018 to design, manufacture, supply, installation, testing and commissioning with five years comprehensive maintenance contract of Grid Connected Solar Photo Voltaic (SPV) Power Plant (1 No. of 100 kW) under net metering at various locations of Talegaon Municipal Council, Pune in 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, with a claim period of further two month.

Yours truly Signature and seal of the	_____ _____
Guarantor: Name of Bank/Financial Institution: Address: Date:	_____ _____ _____ _____ _____

Format - A
POWER OF ATTORNEY

(On company's letter head)
Know all men by these presents, We, ……..,
Reg.

Address: ……. ……. do hereby irrevocably Constitute, nominate, appoint and authorise Mr./Mrs./……..……..,Contact No. +91-……., Email ……@..... presently employed with us and holding the position of ……., as our true and lawful attorney (hereinafter referred to as the "Attorney") to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to participate in e-tendering process for E-Tender no. for Design, Manufacture, Supply, Installation, Testing And Commissioning With Five Years Comprehensive Maintenance of 95 kWp Grid Connected SPV Power Plant At various locations of Talegaon Municipal Council, Pune in the State of Maharashtra, including but not limited to signing and submission of all applications, Bids and other documents and writings, participate in Bidders and other conferences and providing information / responses to the Company, representing us in all matters before the Company, signing and execution of all contracts including the Contract Agreement and undertakings consequent to acceptance of our Bid, and generally dealing with the Company in all matters in connection with or relating to or arising out of our Bid for the said Project and/or upon award thereof to us and/or till the entering into of the Contract Agreement.

AND, we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

For

(Company Name)

Name of signing authority:

Designation: (Owner / Director / Proprietor / Partner)

Place: Date:

Format - B

DECLARATION

(On company's letter head)

To,

Chief Officer,
Talegaon Dabhade municipal Council,
Tal Maval Dist Pune.

Reference: E-Tender no.

Respected 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 currency 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, General Manager, Divisional Office Pune, Maharashtra Energy Development Agency, 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 General Manager, Divisional Office Pune, and 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
BANK DETAILS

Sr. No.	
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

Bidder shall provide the information requested in the corresponding Information Sheets included here under.

Sr.No.	Particulars	
1.	Name & Mailing Address of firm	
2.	Contact Person Name, Designation & Contact No.	
3.	E-mail Address for correspondence	
4.	Firm Website Address	
5.	Firm Status (Private / PSU / Incorporate / Proprietor)	
6.	Establish Year of firm	
7.	PAN/ TAN No.	
8.	Firm Registration No / ROC	
9.	STR/ VAT / TIN No	
10.	Turnover 2017-18, 2018-19 & 2019-2020 (in Crores Rs.)	
11.	Company Profile (<100 words)	
12.	Skilled manpower	
13.	Experience in SPV Power Plant (<100 words)	
14.	Experience in other solar projects (<100 words)	
15.	Solar related Product Range	
16.	Experience in Guarantee, Maintenance & After Sales Services (Years)	
17.	Accreditation	

18.	List of ISI, ISO, Other cert.	
19.	Technical specification for solar photovoltaic cell / panel / module- make	
20.	Technical specification for Junction boxes- quantity and make	
21.	Technical specification for Inverter / Controller -quantity and make	
22.	Technical specification for Cables- quantity and make	
23.	Other Technical specification, if any	
24.	Has any Govt. / Under - taking ever debarred the company/firm	
25.	Special Remarks, if any	
26.	Attached are copies of the necessary original documents.	
I.		
II.		
III.		

It is certified that the information provided above is true to the best of my knowledge and belief. If any information found to be concealed, suppressed or incorrect at later date, our tender shall be liable to be rejected and our company may be debarred from executing any business with EMPLOYER.

Date:

Signature of Bidder Name:

Designation:

Company:

Format - E
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 2017-18, 2018-19 & 2019-20)**	
Year	**Rupees (□) in Lacs**
FY 2017-18	
FY 2018-19	
FY 2019-20	
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)

Name of 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 certificate.

Format - F
LIST OF PROJECTS
(Grid connected / of grid Solar PV Power Generation Plants)

Sr. No.	Name of Project	Plant Capacity	Date for commissioning / Current Status of Project
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			

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

Date:

To,
The Chief Officer,
Talegaon Dabhade Municipal Council,
Tal Maval Dist Pune.

Reference: E-Tender no.
Sub. : Site Visit Report for installation of Grid Connected Solar Photo Voltaic (SPV) Power Plant (95 kW) under net metering at various locations of Talegaon Dabhade Municipal Council, Pune in Maharashtra.

Respected Sir/Madam,

This has reference to above referred tender of electrification of various locations of **Talegaon Municipal Council, Pune**, and Maharashtra to be electrified through Solar Power. I / We hereby declare that we have visited site.

I / We made ourselves acquainted with site conditions, approach to site, requirement of land, soil conditions, 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 projects and complete them in the given time period.

Thanking you

Yours faithfully,
Seal:

(Signature of Bidder)

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

Designation: ……..

Seal:

Signature by / at various locations of Talegaon Dabhade Municipal Council, Pune
*(Representative / in charge-Electrical at **Talegaon Dabhade Municipal Council Pune***

Format - H

CHECK LISTs

Sr. No.	Part –A	Particulars	
1.	Annexure- I	a) Details of Tender document fees OR Valid exemption certificate issued by competent Govt. authority	
	Annexure- I	b) Details of Earnest money Deposit OR Valid exemption certificate issued by competent Govt. authority with G.R	
2.	Annexure- II	Tender document (duly stamped and signed by bidder's authorised person on each page)	
3.	Annexure- III	Valid Registration Certificate issued by PWD/MJP in Class A	
4.	Annexure- IV	Certificate of incorporation of company issued under company act or by Any other competent authority in case of proprietary /partnership firm	
5.	Annexure- V	Copy Registration Certificates for GST & PAN Card	
6.	Annexure- VI	Technical specification	
7.	Annexure- VII	Address proof of Registered office /service centre	
8.	Annexure- VIII	Warrantee certificates of equipments on Letter head	
9.	Format- A	Power of Attorney (on company letter head) if applicable	
10.	Format- B	Declaration (on company letter head)	
11.	Format- C	Banker's Details	
12.	Format- D	Bidder's Information	
13.	Format- E	C. A. Certificate (on C. A.'s letter head)/Annual Turnover (submit copy of IT returns for last three financial years, supporting with summery of balance sheet / auditor's report)	

14.	Format- F	List of Project (submit self attested copies of work orders; refer Section II of Tender, Clause no iii. of 2. for eligibility criteria)	
15.	Format- G	Site Visit Report (on company letter head; It is mandatory to upload site visit report either duly signed by concern authority at Site (Site Visit Report will sign during Pre-bid)	
16.	Format- J	To be submitted on Rs. 100 /- stamp paper	

Note:

- Above information / documents are to be uploaded / annexed and flagged as a **SINGLEPDF** in prescribed format in above **SEQUENCE.**
- Bid without any of above document is liable for rejection.
- Upload necessary documents only, so as to restrict Bid with maximum 200 pages; readable scanned file for resolution not less than 100 dpi.
- Submit financial BID, separately.

Format – I

(To be submitted on Rs. 100/- stamp paper at the time of work order)

Affidavit

I..... (Name) have done the Project o f .....KWp For..... (Beneficiary Name) hereby declare that the above mentioned project is commissioned by abiding following:

The standards and norms set by Ministry of New and Renewable Energy (MNRE) is maintained while installation of project.

The project has been installed under the supervision of electrical contractor/supervisor, the electrical parameters involved in the project have been considered under supervision of electrical contractor/supervisor.

All electrical norms are followed, electrical safety measures are taken in consideration and the project is electrically safe. Electrical contractor/supervisor has authorized the electrical safety measures and norms.

The mechanical safety norms while designing and installation of structure are strictly followed. The solar hot dip structure is tested, approved from engineer and is capable of bearing the load of solar panels, withstand natural parameters (wind, rain) over the duration of project life.

The roof of the building is capable of bearing the load of hot dip galvanized structure and solar panel over the period of project life.

I will be responsible for maintenance of the project over the period of Comprehensive Maintenance Contract (CMC) i.e., 5 years and for the remaining 20 years the beneficiary is responsible for undertaking the maintenance work of the project.

In case of any mishap from the solar project with the parameter mentioned above, I will be responsible. I hereby undertake for the above.

Sign of project developer: .....

Stamp & Signature: .....

Beneficiary Name: .....

Address:.....

EMPLOYER
Official

Sign: Office

Stamp:

Format - J

Undertaking

(On Rs.100/- Stamp Paper)

I_____Age___,Years____,Occupation_____Address-_____, the (Authorized Signatory) of M/S_____(Company Name) hereby states that, I/My

Company is intending to participate for Tender no. Design of structure, Fabrication, Supply, Installation, Testing, Commissioning and Operation & Maintenance for a period of 5 years of total 95 kWp capacity grid-connected solar plant under roof-top net metering at various locations of Talegaon Municipal Council Pune, Pune in the state of Maharashtra.

I have read all the terms & conditions mentioned in the Tender document of the EMPLOYER. I hereby further undertake and declare that all the terms & conditions mentioned in each and every page of the said tender document along with the clarifications released, if any, are binding on me / my company and I am fully aware that, in case of breach of any term or condition of the said Tender document, I am/my company is liable to be disqualified from the said tender process.

Sign

Name of authorized

Signatory: Name of

Company with Stamp:

Format - K
Commitment from the Tenderer

(To be submitted separately on Rs.100 stamp paper at the time of work order)

We hereby confirm that the_____ from proposed 95 kWp**,** Grid connected solar PV Plant at various locations of Talegaon Municipal Council, Pune, we will provide the assured generation of 4 units per day per KWp calculated as 90000 units per month at energy meter in control cabin/room as certified by joint meter reading of manufacturer's representative and user's representative.

However for 5 years we hereby commit to pay an amount of Rs.6 per unit as compensation to Talegaon Municipal Council, Pune for the amount of units unable to supply against the guaranteed generation.

Date :

Place: Signature of the Tenderer

Seal

PART-B

Tender Reference No.

FINANCIAL BID

Name of the Firm: ----------

Solar Power Generator/Plant Financial offer for the Design, Supply, Installation, Commissioning, with 05 years warranty with comprehensive maintenance of Solar Power Generator / Plant as per scope of work, Tech. requirement, Specifications & terms and conditions etc. of Technical Bid, of the tender.

Sr. no.	**Capacity of Solar Power System**	**SPV Type & Scope**	**System Quantity**	**Unit Rate (Rs.)**	**Total price (Rs.)**
1	SPV systems of 95 kWp to be installed at various locations of Talegaon Municipal Council, Pune on Turnkey basis (EPC & 5 years CMC)	Grid connected with Net metering	95 kWp		
Final Total Price in Words		Rupees:……			
# Financial Evaluation/Ranking shall be done based on offered "Final Total Price" (FTP) only					

Note:-

1. Certified that rates quoted above are as per the requirement, specification, scope, terms & condition mentioned in the e-tender document & its corrigendum (s), if any.
2. The rates are inclusive of all taxes & duties, storage, transportation up to site, insurance etc., and any other job required to properly execute the work.
3. Any techno commercial deviation / price escalation shall not be entertained / allowed.
4. This offer shall remain valid for acceptance for 6 Months from the date of opening of financial bid of e-tender.

(Signature of Bidder)
With seal

To be uploaded in Part B.
Other document / condition / any deviation, terms if enclosed will lit We to be rejection of bid.