E-TENDER FOR

DESIGN, MANUFACTURE, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING WITH FIVE YEARS COMPREHENSIVE MAINTENANCE CONTRACT OF TOTAL 38 KW GRID CONNECTED SOLAR - WIND HYBRID POWER PLANT WITH BATTERY BACKUP, 9.5 KW EACH AT 4 ASHRAM SCHOOL UNDER ITDP, NASHIK, DISTRICT NASHIK IN THE STATE OF MAHARASHTRA.

Tender Ref. No.

DGM/MEDA-NSK/ITDP- SOLAR WIND HYBRID/2022-23/03

MAHARASHTRA ENERGY DEVELOPMENT AGENCY

(A Government of Maharashtra Institution)

Address: Nashik District Krishi Audyogik Sahakari Sangh Ltd., Near NDCC Bank, Dwarka Circle, Mumbai Agra Highway, Nashik. 422211
Contact No. 0253-2598685
Email ID: domedanasik@mahaurja.com
Website (for Tender): https:// mahatenders.gov.in

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SECTION-I

BID INVITATION

- **Brief Description of the Bidding Process**
- **The Divisional General Manager (Divisional Office Nashik),** on behalf of **MEDA (the Employer**), invites eligible bidder to submit a bid in accordance with the provisions of this Tender Document. In this Tender Document, the term "Bidder", which expression shall, unless repugnant to the context, include all parties who have submitted bids in response to this Tender Document within the stipulated time frame for submission.
- The Bidders shall submit the bids in two parts by following e-tendering process described in bidding documents. First part comprises of the technical bid and these cond. 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, along with its tender, the refundable Earnest Money Deposit (EMD).
- MEDA Divisional Office Nashik will open the technical bid of the Bidder, by e-tendering process. The financial bid will be opened of those bidders which are qualified in technical bid.

BIDDING INFORMATION

1	Tender Reference No.	DGM/MEDA-NSK/ITDP- SOLAR WIND HYBRID/2022-23/03
2	Date of sale of Tender document	From 09th June, 2022 at 18:30 hours To 24nd June, 2022 at 18:30 hours
3	Date & Time of Pre-Bid Meeting at MEDA, Nashik Divisional Office	15nd June, 2022 at 11:30 hours
4	Date & Time for Online submission of Tenders	From 09th June, 2022 at 18:30 hours To 24nd June, 2022 at 18:30 hours
4	Date & Time of opening of Technical Bid	27nd June, 2022 at 11:00 hours
5	Estimated Cost	Rs. 96,48,812/- (inclusive of GST)
6	Earnest Money Deposit (EMD) 1% Only	Rs.96,488/- (Rupees Ninety Six Thousand Four Hundred and Eighty Eight only.) should be paid online through respective portal only.
8	Security Deposit:	3% of contract value by Demand Draft (DD) in favour of MEDA payable at Nasik.
9	Address for communication and Venue for Tender opening	Address: Krishi Audyogik Sahakari Sangh, Nr. NDCC Bank, Dwarka Circle, Nashik - 422211 Contact No. 0253 - 2598685 Email ID: domedanasik@mahaurja.com Website (for Tender): https://mahatenders.gov.in
10	Tender Document fee	Rs.10,000/- including 18% GST (Non-refundable & Non Transferable)

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

If any technical difficulties arise while filling up e-tender, please call at 24 x 7 Help Desk Number 0122-4001 002/005 at NIC. It is compulsory to pay tender document fee, EMD through E-payment SBI Net Banking. Eligible bidders can upload the Tenders through maha e-tender portal of GoM: https://mahatenders.gov.in

SECTION-II

INFORMATION AND INSTRUCTION TO BIDDERS

The Divisional General Manager (Divisional Office, Nashik), on behalf of MEDA (the Employer), invites e-tender from eligible bidders for "works" include Design, manufacture, supply, installation, testing and commissioning with five years comprehensive maintenance contract of total 38 kw grid connected solar - wind hybrid power plant with battery backup, 9.5 kw each at 4 Ashram school under ITDP, Nashik, district Nashik in the state of Maharashtra. (Here in after referred to as the contract of works) and as described in the tender document on 'Turnkey Contracts 'under Tender DGM/MEDA-NSK/ITDP- SOLAR WIND HYBRID/2022-23/03

S.N.	Name of Proposed Site	Type of System	Capacity	Estimated Cost of Project (Rs.)
1	Government Ashram School & Jr. College, Ganore, Tal. Surgana, Dist. Nashik	Grid connected solar - wind hybrid power plant with 6 Hours battery backup	9.5 KW	24,12,203/-
2	Government Ashram School, Maani (Muli), Tal. Surgana, Dist. Nashik		9.5 KW	24,12,203/-
3	Government Ashram School, Inambari, Tal. Peth, Dist. Nashik		9.5 KW	24,12,203/-
4	Government Ashram School, Borwat, Tal. Peth, Dist. Nashik		9.5 KW	24,12,203/-
	Total		**38 KW**	**96,48,812/-**

1. SCOPE OF CONTRACT

The Scope of contract is as below:

- Design, manufacture, supply, installation, testing and commissioning with five years comprehensive maintenance contract of total 38 kw grid connected solar - wind hybrid power plant with battery backup, 9.5 kw each at 4 Ashram school under ITDP, Nashik, district Nashik in the state of Maharashtra "Turnkey" Contract Basis and as described in the Bidding Document.
- Free replacement of defective components of systems within Comprehensive Maintenance Contract period (CMC) of 5 years after commissioning for efficient running of the Grid-connected Solar Wind hybrid Photovoltaic Power Plants with battery backup.
- Successful Bidder(s) will be responsible to register these projects by operation and management arrangements and rules, regulations and modalities as per MNRE and as established by MEDA and mutually agreed between MEDA and the contractor for effective implementation of the project.
- The Successful bidder should complete this project in given time to get maximum Incentives to the beneficiary. MEDA will not be responsible if no incentives / less incentive is received to the beneficiary due to delay in project.
- Bidder can quote only after 100% site visit of all Govt. Ashram School And Upload Site Visit format duly signed by beneficiary and MEDA authority and upload photographs from google earth (with latitude and longitude) any discrepancy occurred while executing project, related to site it will be in account of bidder only.
- Detailed planning for smooth execution of project.
- Selected Bidder(s) shall be bound by operation and management arrangements and rules, regulations and modalities as prescribed by MNRE and MEDA for effective implementation of the project.
- Time is the essence in completing the Works. The successful Bidder will be required to complete the works within the stipulated time as specified in the tender document. The bidder shall ensure that project should be commissioned within **60 Days** from the date of issue of work order.

- Bids shall be complete and cover all works described in the Schedule of Prices. Any item of works required for complete usable system shall be deemed to be included in bidder's scope irrespective of whether it is specifically mentioned or not in the price schedules.
- Bidder should note that obtaining permissions from statutory bodies wherever required for execution of works, shall be entirely in bidder's scope.
- Bidder should note that during progress of the work he has to submit the progress report of the work in every 15 days along with the photograph of the site to MEDA, Nashik Office.
- You shall be responsible for providing 'NET-METERING' system from respective DISCOM. Installation of Net-Metering is your responsibility, for this **you have to submit the application with all necessary documents and fees to respective DISCOM within 7 days after getting work order**. You shall provide sealed & tested energy meter at consumption side & generation side of SPV-Wind Power Plant along with bidirectional meter. Bidder should obtain statutory permissions from statutory bodies wherever required for execution of works.
- Pre-bid meeting shall be the part of Tender document. Decisions taken in the pre-bid meeting will be applicable to the tender accordingly bidders have to quote the price and submit the necessary documents with the tender. Bidder need to acquit them self from actual site condition in order to discuss all issues of site.
- The "Technical Specification" is to be strictly adhered while installation of the project. Any deviation from the same if observed will lead to alteration as per norms provided in "Technical Specification" or as per site requirement.
- The bidder must acknowledge that all the work of the project must be in the observance of licensed electrical contractor. The responsibility of electrical works, safety precautions and safety parameters of the project will be of licensed electrical contractor and awarded bidder, which must as per standards specified.
- The bidder shall provide insurance coverage of Complete Project documents effective from date of commissioning of the project for period of 05 years covering damage by force majeure.

- Taking into consideration the civil load bearing capacity of building, the approval of structure must be taken from civil/structure/PWD engineer. Electrical drawings/SLD must be approved by Electrical Inspector/Contractor.
- Bidder must provide Lithium Ferro Phosphate Battery Bank for minimum 6 hours full load back-up, all necessary Wiring must be done by bidder for uninterrupted power supply through battery backup. The Comprehensive Maintenance Contract (CMC) must be included for 5 years from the date of commissioning of the plant.
- **Bidder must ensure battery backup of minimum 50% of plant capacity as per table no. 1 or whichever is higher to feed the EPS load. EPS wiring is compulsory & responsibility of bidder.**
- Remote Monitoring System (RMS) with Wi-Fi/GSM is necessary to install at this location and bidder has to provide quarterly generation report up to 5 years after commissioning of the project at Divisional Office, MEDA, Nashik.
- Civil Structure for Solar and Wind Project must be authorized by Chartered Engineer (Civil) and provide structure certificate.
- 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 bidding and are liable to be summarily rejected.

2. ELIGIBILITY

The bidder shall provide sufficient documentary evidences to satisfy the following conditions, that the bidder:

I. They should provide valid registration certificate and IEC certificate of SPV Module, hybrid inverter and Authorized channel partner for Wind Power System and authorized Channel Partner of the Company having same work experience.

II. Battery, solar, Hybrid Inverter and Wind component test report from authorized test center NIWE (National Institute of Wind Energy).

III. Bidder must have Electrical Contractor License or Application receipt and empaneled with MSEDCL.

IV. Shall manufacture/supply the material (module and inverter) only as per the standards mention in tender document.

V. The Bidder should have installed & commissioned **100 KW capacity (single) Grid-connected roof top net metering systems and 10 KW (single) grid connected Solar Wind system with hybrid inverter and battery backup** during last 03 year along with Proof and in working stage till the contract given to bidder. The list of projects commissioned has to be submitted along with the tender. The copy of the Commissioning certificate and Work order / Contract / Agreement / from the Client / Owner shall be submitted.

VI. Is a manufacturer of SPV system or System Integrator and shall provide the test certificate of SPV system issued by MNRE or its authorized test centers.

For submission of the bid (Grid connected), bidder must have to fulfil following criteria

- Must have field service setup to provide good after sale services including necessary repair and maintenance under Nashik jurisdiction in the state of Maharashtra, to carry out repair/replacement work within 48 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/setup in Jurisdiction of Nashik division is must. Accordingly bidder has to submit the details thereof.
- Has provided goods after sale services for the works done by him during last three year.
- Bidder must submit the address, company personnel details of registered office/ service/dealership network or setup within periphery of Nashik division which will be responsible for conducting O&M within the CMC period briskly.
- Must have cumulative turnover of minimum 2 Crore during last three years.
- All above criteria shall be strictly followed. Bidder should quote only if he is eligible.

3. STANDARDS/ CERTIFICATES

- 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 shall provide an indicator, which will show the status of charging.
- The manufacturer should submit test certificate of Module.

GUARNTEED GENERATION CLAUSE

- For grid-connected solar-wind pv power plant with full load battery backup (hybrid system) for 6 hrs under roof-top net metering with capacity of 9.5 kw, at Govt. Ashram School under ITDP, Nashik and total 38 kw for 4 nos. of Govt. Ashram School Centre the evaluation of yearly guaranteed generation for Solar PV System must be equal to 4 units* 320 days * 9.5 KW = 12160 units/year for each Power Plants respectively.

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.

4. INSTRUCTIONS

- Bidder shall upload Information, Experience Certificates, Test Reports and other such relevant document's for Grid Connected Solar-Wind Hybrid Power plant with battery backup specified in the list of other important documents on the portal http://mahatenders.gov.in.
- The bidder should visit site & carryout the survey along with concern persons of respective Ashram School as mentioned in Tender in consultation with MEDA Office, upload the certificate indicating that the survey is carried out by the bidder as per Format-G with Survey reports.
- 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, MEDA may at its discretion ask the bidders for clarification of their bid.
- Only Technical bids confirming to minimum eligibility criteria and found to be responsive will be taken up for detailed technical evaluation. A technical/tender evaluation committee shall

evaluate the Bids submitted by bidders for a detailed scrutiny. During evaluation of Bids, MEDA, 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 bids of bidders qualifying above conditions shall be subsequently opened.

The time and date of the opening of the Price bid shall be intimated at tender web site by MEDA.

- 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.
- For any Clarification /online support please contact at mail id: domedanasik@mahaurja.com

MEDA reserves the right to reject or accept any or all tenders without assigning any reasons thereof. The work order is not transferable. Subletting is not allowed. MEDA 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 condition. Bidders to go through clause No. 4 above for survey of site.

5. COST OF BIDDING

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

6. 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 MEDA 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.

7. DOCUMENTS COMPRISING THE BID

The Bid prepared by the Bidder shall be uploaded in 'Two parts Viz. Technical and Financial bids comprising the following components. Bids shall electronically submit online in the E-tender platform and the documents shall be scanned and submitted.

Part I- Technical Proposal:

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

- Bidder's Information Sheet
- Copy of receipt for tender fee
- Copy of receipt for EMD / Valid exemption certificate issued by competent Govt. authority Duly stamped and signed tender document (Tender Document)
- Firm registration certificate
- Copy of PAN
- Copy of GST registration
- Power of attorney; for company's authorized person (Refer Format -A)
- Declaration – on Company letterhead (Refer Format -B)
- Banker's details of bidder (Refer Format - C)
- Bidder's Information Sheet (Refer Format -D)
- C. A. Certificate – on CA's letter head (Refer Format - E), along with scanned copy of IT returns for last three financial years, supporting with summery of balance sheet / auditor's report
- Annual Turnover
- Self Certification of No Barr/non failure/blacklisted.

- Details of Registered Office in jurisdiction of Nashik Division.
- Installation and Performance Credentials
- Experience for installation and commissioning of SPV power plants.
- Experience/set-up of after sales service
- Sheet of physical technical specifications and description of actual materials which are to be used in installation of project
- Undertaking of Guaranteed Generation Certificate on Rs.100 stamp paper.
- Standards maintained for various components to be used in the project
- Safety consideration for system protection
- Warranty certification of equipment's / components
- Documents of licensed Electrical Contractor who will be supervising the project
- Site Visit format duly signed by beneficiary and MEDA authority (Refer Format - G)
- List of Projects - Experience for installation and commissioning of for cumulative quantity of **100 KW capacity (single) Grid- connected roof top net metering systems and 10 KW (single) grid connected Solar Wind system with hybrid inverter and battery backup** list of projects (Refer Format - F). Along with scanned copies

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

Part II

Financial bid

Financial Bid shall contain:

- The bidder should quote the price as against total tender estimate as shown in the tender document.
- The price quoted in the bid will be ***inclusive of all*** duties, insurance and all incidental charges for successful design, supply, installation, commissioning along with comprehensive maintenance for five years of grid connected solar - wind hybrid power plant with battery backup.
- Prices shall be quoted in Indian Rupees only.
- In no circumstances, escalation in the prices will be entertained.

- Financial Bid uploaded with an adjustable price quotation will be treated as non-responsive and will be rejected.
- Any Bid not in accordance with above clauses of this Section will be rejected.

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

A) EARNEST MONEY DEPOSIT:

The Earnest Money Deposit of **Rs.96,488/- (Rupees Ninety Six Thousand Four Hundred and Eighty Eight only)** should be paid online through respective portal. Tender without Earnest Money Deposit will be out rightly rejected. No interest shall be payable on the amount of Earnest Money. EMD shall be returned to unsuccessful Bidders after acceptance of work order by successful Bidder and EMD of successful Bidder shall be returned after submission of security deposit.

Bidders having exemption under MSME shall necessarily submit self attested copy of ***valid exemption certificate***; otherwise tender shall be out rightly rejected.

L1 Bidder is to submit original copy(s) of such certificate / registration for review / verification, before issuing the LOA. In absence of original certificate / registration, further tendering procedure shall be stopped with such L1 Bidder, with immediate effect and appropriate strict actions will be taken against such Bidder, including recovery of EMD amount.

B) FORFEITING OF EMD:

The EMD paid or 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, MEDA shall have full right to claim damages thereof in addition to the forfeiture of EMD.
6. If the L1 bidder does not accept the work then MEDA will blacklist the L1 bidder

C) SECURITY DEPOSIT:

1. 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) by way of demand draft of nationalized bank in favour of Maharashtra Energy Development Agency payable at Nashik.

2. ***Additional Security Deposit (SD) clause:-**

   If bidder quotes within the limit of -20% to +10% of the tender estimated cost, the Security Deposit (SD) of 3% of contract value is to be deposited.

   If bidder quotes below 20%, then bidder has to submit Security Deposit (SD) as mandatory 3% + additional percent with respect to percentage below 20% of the total contract value. For ex. If Bidder quotes -24% then bidder has to submit 3% mandatory + 4% additional = 7% of the total contract value as security deposit (SD).

3. 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.

4. The security deposit shall be liable to be forfeited wholly or partly at the sole discretion of the MEDA, 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 the MEDA.

5. In case of premature termination of the contract, the security deposit will be forfeited and MEDA 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.

6. The MEDA is empowered to recover from the security deposit for any sum due and for any other sum that may be fixed by the MEDA 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.

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

9. PRICE VARIATION:

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

In event bidder offers price less than 80% of estimated cost indicated in this tender document. Such Bidder fails / refuses to execute the contract. In this case, MEDA shall have full right to claim damages thereof in addition to the forfeiture of EMD. Necessarily, no exemption in tender fee & EMD shall be allowed for such price bid. Such lowest bid without tender fee & EMD shall be ***out rightly rejected during financial evaluation*** though the bidder is technically qualified.

10. JURISDICTION:

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

11. PERIOD OF VALIDITY OF BID

- Bids shall remain valid for 180 days after the date of opening of Technical Bid. A Bid valid for a shorter period shall be rejected by MEDA as non-responsive.
- In exceptional circumstances, MEDA 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.

12. MODE OF SUBMISSION OF BIDS

- The Bids shall be submitted electronically in the e-tender platform only.
- Bids sent by any other mode like in person, post, Telex or Fax or e-mail will be rejected.
- MEDA may at its discretion require any Bidder to submit the hard copy of any of the document submitted on e-tender platform.

13. DEADLINE FOR SUBMISSION OF BIDS

- Bids must be uploaded by the bidder through e-tender process not later than the time and date specified in the invitation for Bids.

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

14. CLARIFICATION OF BIDS

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

15. PREBID MEETING:

Pre bid meeting shall be called at office of Maharashtra Energy Development Agency, Divisional Office Nashik to clarify doubts, if any of the bidders within a week of floating tender on site **https://mahatenders.gov.in** before submission of final tender document.

16. PRELIMINARY EXAMINATION

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

17. ACCEPTANCE OR REJECTION OF BIDS

- MEDA 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 Govt., of Maharashtra and will be black listed.

18. CRITERIA FOR BID EVALUATION

- Step 1: Test of Responsiveness

  Prior to evaluation of Bids, MEDA 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 MEDA 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 MEDA 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 shortlisted

Technical Evaluation

- Only Technical bids conforming to minimum eligibility criteria and found to be responsive will be taken up for detailed technical evaluation. A technical/tender committee shall evaluate the Bids submitted by bidders for a detailed scrutiny.

Financial Evaluation

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

- At the outset, the price bids of all the Bidders who are technically qualified in technical evaluation shall be opened in the presence of the Bidders Representatives. Presence of the Bidders Representatives is essential. No claim / further clarification will be entertained, to the Bidder in case the Representative is fails to attend this meeting.
- The bidder's names, the Bid Prices, the total amount of each bid, any discounts, and such other details as the Employer may consider appropriate, will be announced and recorded by MEDA 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) 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.

19. AWARD CRITERIA AND AWARD OF CONTRACT

MEDA 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.

20. CORRUPT OR FRAUDULENT PRACTICES

MEDA requires that Bidders shall observe the highest standard of ethics during the execution of contracts. In pursuance of this policy, MEDA:

Defines, for the purposes of this provision, the terms set forth as follows:

- "Corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution; and
- "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Government, and includes collusive practice among Bidders (prior to or after tender submission) designed to establish tender prices at artificial non-competitive levels and to deprive the Government of the benefits of free and open competition;
    - will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;
    - will declare a firm ineligible, 3 years for a period of time, to be awarded a Government financed contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a contract.

21. TERMS OF PAYMENT:

a. 80% of the total cost will be released after supply, installation & successful commissioning of the systems duly certified by Bidder, Officer of MEDA & authorized person of Beneficiary along with submission of Insurance policy documents effective from date of commissioning for CMC period.

b. 20% of the total cost shall be released on submission of next three month successful performance report in prescribed format which should be duly certified by Officer of MEDA, authorized person of Beneficiary and submission of Performance Bank Guarantee of 3% of total project cost from any Nationalized Bank valid for period of 5 years.

Deduction:-

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

ii. MEDA will issue necessary certificates of TDS deduction

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

22. TIME FRAME:

The time frame for the completion of work is **60 days** from the date of issue of work Order.

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 and the Successful bidder has to be are all the cost incurred against the balance work left by him forth completion of project.

SECTION–III

GENERAL CONDITIONS OF CONTRACT (GCC)

1. General Terms and Conditions:

The following are the General Terms and Conditions of Contract for Design, manufacture, supply, installation, testing and commissioning with five years comprehensive maintenance contract of total 38 kw grid connected solar - wind hybrid power plant with battery backup, 9.5 kw each at 4 Ashram school under ITDP, Nashik, district Nashik in the state of Maharashtra, as per the specifications given in the document.

a. Bidder shall be responsible for any damage occurred, if any, to other installations of the Hostel Buildings 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 IM-MOVABLE SHALL BE ENTIRE AND SOLE RESPONSIBILITY OF THE BIDDERAND ANY PROCEEDING ARRISING OUT OF THE SAME SHALL BE AT THE BIDDER'S RISK ANDCOST, MAHARASHTRA ENERGY DEVELOPMENT AGENCY (MEDA) 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. Bidder should provide facilities and bear the cost for the same. Power curve of all the panels erected by manufacturers shall be provided to the MEDA.

d. The selected Bidder is bound to work on the guideline provided by MEDA from time to time. Guidelines if issued in future by MEDA, the changes proposed will also be applicable without enhancement 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 MEDA

with a copy to user agency. Bidder shall also impart training to the user for regular Operation & Maintenance of the system and certificate in this respect should be submitted.

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

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

i. In the event of any discrepancy observed in specifications, the specifications given by MEDA will be final. In the event of dispute arising any time, related to this work and document, decision of the Divisional General Manager, MEDA, Nashik or his nominee shall be final.

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

l. During the inspection, if any deviations in Technical Specifications are observed, MEDA 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, MEDA reserve right to cancel the work order and get it done from other supplier and any loss due to this shall be recovered either from any amount due to the supplier or from his Security Deposit.

n. At the time of inspection of MEDA, manufacturer or supplier has to submit the I.V. curves and test reports of supplied PV modules to respective officer.

o. The Wiring must be carried out in casing-capping / conduit which are suitable as per site condition

p. It will be responsibility of the Bidder to ensure the satisfactory performance of the system.

q. The Bidder shall provide the display board of size 3ft x 3ft that gives detailed information of system along with the contact details of manufacturer. This will help the beneficiary during 5 years CMC period

r. The Bidder shall comply with the provision of contract labour (Regulation and Abolition) Act 1970, minimum wages Act 1948, payment of the wages Act 1963 Workmen's Compensation Act 1961, the contract labour (Regulation and Abolition) Act 1979 and all other related Acts and any modification thereof or any law relating thereto 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 Divisional General Manager, MEDA, Nashik 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 Divisional General Manager, MEDA, Nashik shall be final.

v. The Divisional General Manager, MEDA, Nashik 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 MEDA will forfeit his EMD amount.

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

y. Divisional General Manager, MEDA, Nashik 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 subject to L2 bidder accept the work at received L1 price.

z. It is binding on the successful Bidder to submit original certificates, documents required by MEDA.

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 Employer, 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, to review the 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 accordance with the three preceding paragraphs.

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 MNRE/MEDA/BIS/ Indian Standard Specifications, to the reasonable satisfaction of The Employer.

- The Contractor/Agency should successfully complete the project within timeframe set out by the employer and mutually agreed between Contractor/Agency and Employer.
- MEDA shall not be responsible for any loss or damage of any material when installing grid connected solar - wind hybrid power plant with battery backup.
- 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 grid connected solar - wind hybrid power plant with battery backup 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 goods supplied under this contract shall confirm to the Standards mentioned in the Technical specifications as mentioned in tender/ MEDA requirements and, when no applicable standard is mentioned, to the authoritative standard appropriate to the Good's country of origin and such standards shall be the latest issued by the concerned institution.

6. Inspection:

- Bidder shall inform MEDA, Nashik in writing when the work is complete and ready for inspection giving sufficient notice to enable MEDA to depute officials to inspect the same. The work shall not be considered in accordance with the terms of the contract until the competent person from MEDA certifies in writing to that effect.
- 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.

8. 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 MEDA'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

MEDA 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 MEDA or
- If the Contractor/ Agency, in the judgment of MEDA has engaged in corrupt or fraudulent practices in competing for or in executing the contract.

In the event MEDA terminates the contract in whole or in part, MEDA 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 MEDA 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 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 MEDA.

14. Spares & tools-tackles:

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

15. Insurance:

The bidder shall provide insurance coverage ex-factory until commissioning and acceptance for replacement or repair of any part of the consignment due to damage or loss occurred during CMC.

16. Warranties and Guarantees:

The Bidder shall warranty that the goods supplied under this contract are new, unused, of the most recent or latest technology and incorporate all recent improvements in design and materials. The bidder shall provide warrantee covering the rectification of any and all defects in the design of equipment, materials and workmanship including spare parts for a period of 5 years from the date of commissioning of project. The successful bidder has to transfer all the Guarantees/Warrantees of the different components to the Owner of the project. The responsibility of operation of Warrantee and Guarantee clauses and Claims/Settlement of issues arising out of said clauses shall be joint responsibility of the Successful bidder and the owner of the project and MEDA will not be responsible in way for any claims whatsoever on account of the above.

SECTION – IV - TECHNICAL SPECIFICATION FOR GRID CONNECTED SOLAR - WIND HYBRID POWER PLANT WITH BATTERY BACKUP

DEFINITION

Design, manufacture, supply, installation, testing and commissioning with five years comprehensive maintenance contract of total 38 kw grid connected solar - wind hybrid power plant with battery backup, 9.5 kw each at 4 Ashram school under ITDP, Nashik, district Nashik in the state of Maharashtra

A Grid connected solar - wind hybrid power plant with battery backup consists of SPV array, Module Mounting Structure, Power Conditioning Unit (PCU) consisting of Maximum Power Point Tracker (MPPT), Inverter, Net-meter and Controls & Protections, interconnect cables and switches. For Wind power plant consist of Wind AeroGenerator, Tower for Wind turbine, and Grid Tie Inverters for Wind Turbine. PV Array is mounted on a suitable structure. Grid tied SPV system is with battery backup 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, hybrid inverter, tower for wind turbine, 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 5 years.
2. The plant shall feed AC power to the Low Tension (LT) 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, if required; DC cabling, DC distribution box, if required; 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 rooftop with necessary structure in premises of Ashram School where open space is available using **fixed PV array support structure.**

6. The individual Wind power Plant shall be installed on existing rooftop/Ground mounted with necessary Wind Turbine Tower in premises of Ashram School where open space is available using **fixed support structure.**
7. The individual string/array combiner boxes and DC cabling shall be installed on roof/Ground Mounted as necessary.
8. The Lithium Ferro Phosphate (LiFePo4) battery shall be installed in the control room provided in the building.
9. The inverter shall be installed in the control room/open space provided in the building.
10. 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 not be less than cumulative 5 kWp for each site; comprise of solar polycrystalline modules with minimum capacity of 325 Wp and above wattage.

Module capacity less than minimum 325 Wp should not be supplied. The module type must be qualified as per IEC 61215 latest editions 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 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 and manufacturer have experience in manufacturing is not less than 25 years.
2. The negative temperature coefficient of power max shall be equal or less than 0.38% per degree C.
3. Module efficiency greater than or equal to 17.26%.
4. Positive power tolerance range should between 0 to 5 watt peak.
5. Glass is of 3.2 mm, high transmission with ARC.
6. Module weight is should not be greater than 24.5 KG.
7. Junction box rating should be IP68.

8. 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.
9. The PV array shall consist of framed multi-crystalline. Individual PV modules rating should be of minimum 325Wp at STC.
10. The rated maximum power rating of PV module should have positive tolerance in range of 0 to+2%. And negative temperature co-efficient of power for PV modules should be less than or equal to 0.40% 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.
11. 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.
12. The PV Array shall be designed to match the inverter input specifications.
13. 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 / clamping, weather proof lid with captive screws and cable gland entry points & should be IP 65 rated.
14. The front surface of the module shall consist of impact resistant, low iron and high transmission toughened glass.
15. The module frame shall be (GI) made of corrosion resistant material electrically compatible with structural material used for mounting the modules.
16. Each PV module manufactured in India must have RF identification tag (RFID) Compatible with MNRE requirements. (Traceability requirement)
17. DC negative conductor shall be bonded to the ground via Ground Fault Detector Interrupter (GFDI). Inverter shall be equipped with GFDI. The grounding point shall be as close as possible to the PV Array.
18. The module shall be provided with adjunctions box with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-pass diode. The box shall have hinged / clamping, weather proof lid with captive screws and cable gland entry points or may be of sealed type and IP65 rated.
19. Necessary I -V curvesat25^{0}C, 45 ^{0}C, 60^{0}C and at NO Care required to be furnished. Offers to provide PV module linear performance warranty of 25 years and 12 year product

warranty.

20. The PV module must have 10 years free replacement guarantee against material defect or craftsmanship. Guarantee warrantee certificate / document shall be issued by OEM to end user / client; and not issued to / by Bidder.
21. 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.

Warranties:

Material Warranty:

i. Material Warranty is defined as: The manufacturer should warrant the Solar Module (s) to be free from the defects and/or failures specified below for a period not less than ten (10) years from the date of sale to the original customer ("Customer").
ii. Defects and/or failures due to manufacturing.
iii. Defects and/or failures due to quality of materials.
iv. Non conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the manufacturer will repair or replace the solar module(s), at 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 than10% after ten years period of the full rated original output.

Battery Bank:-

- The batteries shall be solar photovoltaic batteries of Lithium Ferro Phosphate (LiFePO4) with appropriate container and stand. Storage batteries should confirm necessary standards as per specifications. Battery terminal shall be provided with covers. Charging instructions shall be provided along with the batteries.
- Suitable carrying handle shall be provided. A suitable battery rack with interconnections & end connector shall be provided to suitably house thebatteries in the bank. The features and dimensions of the battery rack shall be as per battery

requirement. The batteries shall be suitable for recharging by means of solar modules via incremental / open circuit regulators.

- The batteries shall be designed for operating in ambient temperature of site in the state of Maharashtra. The self-discharge of batteries shall be less than 3 % per month at 20 deg. C and less than 6% per month at 30 deg. C The charge efficiency shall be more than 90% up to 70% state of charge. The batteries shall consist of individual cells, which can be carried separately with ease while transporting.
- Offered batteries shall comply to the following: 90 % of DOD: 4000-5000 lifecycles.
- The Battery Bank shall be designed to provide 1 day autonomy.
- There will be battery bank comprising of capacity as per follows

Table No. 1

Capacity	Battery Bank	
KW	Voltage (V)	Ampere Hours (Ah)
1	24	156
	48	90
2	24	300
	48	156
3	24	480
	48	240
4	24	636
	48	300
5	48	396
	96	216
6	48	480
	96	240
7	48	540
	96	276
8	48	636
	96	300
9	48	702
	96	360
10	96	396
	120	300

Battery protection panel

The battery protection panel shall be made of CRCA sheet having two incoming and two outgoing terminals. There shall be 2 Nos. HRC fuses of suitable rating with fuse holder/base etc. as required. 2 poles MCB/ MCCB can also be used for isolation purpose instead of fuses, if required

Battery Type	Lithium Ferro phosphate
Self Discharge	Less than 3% per month at 30-degree C
Life expectancy	4000-5000 cycle duty at 25degree C for90% depth ofdischarge.
Voltage	12 Volt
Approval	Batteries shall have to be approved by ERTL or CPRI or SECor any MNRE approved test centers
Service Life	Should perform satisfactory for a minimum period of 5 yearunder operating conditions as mentioned.

Each battery bank will contain suitable rack, connecting leads, Battery Management System (BMS) etc.

Hybrid Inverter

- Hybrid Inverters shall be of very high quality having high efficiency and shall be completely compatible with the charge controller and distribution panel.
- Inverters should conform IEC 61683, IEC 60068 as per specifications.
- The Hybrid inverter shall be designed for continuous, reliable power supply as per specifications. The inverter shall have high conversion efficiency from 25 percent load to the full rated load. The efficiency of the inverter shall be more than 95%at full load and more than 88% at partial load (50%-75%).

The Hybrid Inverters shall be designed for extreme temperatures

- The Hybrid Inverters shall have internal protection arrangement against any sustained fault in the feeder.

- The dimension, weight, foundation details etc. of the Hybrid inverter shall be clearly indicated in the detailed technical specification.
- Each solid-state electronic device shall have to be protected to ensure long life of the inverter as well as smooth functioning of the inverter.
- Supplier shall indicate tripping voltage & start up voltage for the inverters & this should be perfectly matched with the recommendation of battery manufacturers.
- The PCU shall be mounted on a suitable reinforced concrete pad inside control room not susceptible to inundation by water. All cable entry to and from the PCU shall be fully sheathed to prevent access of rodents, termites or other insects into the PCU from bottom/top of the PCU in form of a detachable gland plate.
- For the Monitoring of Unit generated provision of Ah meters at input side shall be accomplished with Energy meter and voltmeters at suitable place and included in the technical specification clearly.
- Provision for the Equalizing Charging of battery periodically shall be made and state clearly in the technical details.
- The Hybrid inverter will be highly efficient. The inverter should conform IEC 61683 / IEC 60068 and should be based on PWM technology and using IGBT/MOSFET. Inverters would display its own parameters and also the parameters of battery bank connected to the inverter. The inverter's capacity must be as per SPV power plants. The Hybrid inverters should be designed to be completely compatible with the charge controllers and distribution panels and are of integrated design.

Salient features of the Inverters shall be as follows:

Nominal Capacity	As per site requirement
Input / Voltage	As per Hybrid inverter required for Plant. The voltage variation shall be as per change in array output.
Regulation	From minimum to maximum voltage 1%
Output frequency	50 Hz +/- 0.5 Hz
Overload Capacity	200% for 30 Second.
Efficiency	90% at 50% of load and More than 97.80% at full load 0.8PF
Short Circuit Protection	Circuit Breaker and Electronics protection against sustained fault.
Low Battery Voltage	Automatic Shut Down
Total Harmonic Distortion	Less than 2%
Over Voltage	Automatic Shut Down
AC over Current/Load	Automatic Shut Down
Protection	Over Voltage both at Input & Output Over Current both at Input & Output Over Frequency Surge voltage inducted at output due to external source.
Protection Degree	IP65
Instrumentation & Indication	Input & Output voltage, Input & Output Current, Frequency, Power output, different status of inverter, kind of fault by audio signal.

- The PCU required shall be of required rating as per site to convey DC power produced by SPV modules into AC power and adjust the voltage & frequency levels to meet the local grid conditions. The use of String Inverters of cumulative capacity as per site requirement must be preferred.
- Anti-islanding (Protection against Islanding of grid): The PCU shall have anti islanding protection in conformity to IEEE 1547/UL 1741/ IEC 62116 or equivalent BIS standard.

Integration of SPV power and Wind power with grid:-

The output power from SPV and wind machine would be fed to the inverters which converts DC produced by SPV array to AC and feeds it into the main electricity grid after synchronization. In case of grid failure, or low or high voltage, solar PV system shall be out of synchronization and shall be disconnected from the grid. Load requirement would be met to the extent of availability of power. 4 pole isolation of inverter output with respect to the grid connection needto be provided.

➢ DATA ACQUISITION SYSTEM / PLANT MONITORING: -

- Data Acquisition System shall be provided for each of the solar PV plant.
- Data Logging Provision for plant control and monitoring, time and date stamped system data logs for analysis with the high quality, suitable PC. Metering and Instrumentation for display of systems parameters and status indication to be provided.
- Temperature: Temperature probes for recording the Solar panel temperature and/or ambient temperature to be provided complete with readouts integrated with the data logging system.
- The following parameters are accessible via the operating interface display in real time separately for solar power plant:

a. AC Voltage.

b. AC Output current.

c. Output Power

d. Power factor.

e. DC Input Voltage.

f. DC Input Current.

g. Time Active.

h. Time disabled.

i. Time Idle.

j. Power produced

k. Protective function limits (Viz-AC Over voltage, AC Under voltage, Over frequency, Under frequency ground fault, PV starting voltage, PV stoppingvoltage

- All major parameters available on the digital bus and logging facility for energy auditing through the internal microprocessor and read on the digital front panel at any time) and logging facility (the current values, previous values for up to a month and the average values) should be made available for energy auditing through the internal microprocessor and should be read on the digital front panel.
- PV array energy production: Digital Energy Meters to log the actual value of AC/ DC voltage, Current & Energy generated by the PV system provided. Energy meter along with CT/PT should be of accuracy class as per MSEDCL norms.
- 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.
- 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 bemonitored.
- Computerized AC energy monitoring shall be in addition to the digital AC energy meter.
- The data shall be recorded in a common worksheet chronologically date wise.

The data file shall be MS Excel compatible. The data shall be represented in both tabular and graphical form.

- All instantaneous data shall be shown on the computer screen.
- Software shall be provided for USB download and analysis of DC and AC parametric data for individual plant.
- Provision for instantaneous Internet monitoring and download of historical data shall be

also incorporated.

- Remote Server and Software for centralized Internet monitoring system shall be also provided for download and analysis of cumulative data of all the plants and the data of the solar radiation and temperature monitoring system.
- Ambient / Solar PV module back surface temperature shall be also monitored on continuous basis.
- Simultaneous monitoring of DC and AC electrical voltage, current, power, energy and other data of the plant for correlation with solar and environment data shall be provided.
- Remote Monitoring and data acquisition through Remote Monitoring System software at the owner / MEDA location with latest software/hardware configuration and service connectivity for online/real time data monitoring/ control complete to be supplied and operation and maintenance / control to shall be provided.
- The Project developer shall be obligated to push real-time plant monitoring data on a specified interval (say 15 minute) through open protocol at receiver location (cloud server) in XML/JSON format, preferably.

Common Technical Specification Type:

Grid connected Solar Wind hybrid Power Plant with battery Backup

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

Output voltage: 3/1 phase, 415 V AC / 230V AC (+20%, -20% V AC) site specific

Frequency: 50 Hz (+3 Hz, -3 Hz)

Continuous rating: As per site plant rating KV (rated +10%) with Import/Export net metering

Normal Power: As per site plant rating KVA

Total Harmonic Distortion: less than 3%

Operating temperature Range: 0 to 60 deg 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

Other important Features/Protections of PCU:

1. Mains (Grid) over-under voltage and frequency protection.
2. 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.
3. The PCU shall be provided with MPPT (Maximum Power Point Tracing) features, so that maximum possible power can be obtained from the PV module.
4. 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 feed the Loads from Solar Energy being produced. And it should feed the solar power to the Grid if the load is less than the solar energy generated.
5. Full proof protection against grid is landing which ensures that the PV power and the grid power get disconnected immediately in the event of grid failure.
6. The power conditioning units / inverters should comply with applicable IEC/Equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC61683 / IS61683 and IEC60068-2 (1, 2, 14, and 30) / Equivalent BIS Std.
7. The MPPT units environmental testing should qualify IEC60068-2 (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.
8. 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 integration alter 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 with stand anon balanced output load to the extent of 50%.
11. The PCU shall go to the shutdown / 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.

    (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 tender.

    (c) 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.

13. Communication Mod bus protocol with LAN /WAN options along with remote access facility and SCADA package with latest monitoring systems.
14. The inverter with MPPT shall be used with the power plant.
15. The sine wave output of the inverter shall be suitable for connecting to 415V, 3 phases AC LT voltage grid.
16. The inverter shall incorporate grid is landing 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 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 cannot 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. Tests may be performed at 25%, 30%, 75% & 100% of the rated nominal power.
6. 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. OR Manufactures shall have manufacturing & testing facilities as per Norms in IEC standards, product shall be delivered along with such test reports / certificates.

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 earthling 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.

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, or in conduits.

- Wires: Only FRLS 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, over load 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 semi conductor 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 nominal 30 years design life of the unit.
- The PCU enclosure shall be weather proof 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 t o 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 3 x 8 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 Rule 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 battery–cum- control room, solar array area and main entry from administrative block.

Balance of Systems (BoS)

1. String / Array combiner boxes, if required, shall incorporate DC string circuit breakers, DC array disconnect switch, lightning and over voltage protectors, any other protection equipment, screw type terminal strip sand strain-relief cable glands.
2. 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.
3. Only terminal cable joints shall be accepted. No cable joint to joint woo cable ends shall be accepted.
4. Suitable Ground Fault Detector Interrupter (GFDI) shall be incorporated either with the inverter or with the array combiner Box.
5. String /Array combiner boxes shall be secured onto walls or metal structures erected separately on the terrace.
6. Conduits/concealed cable trays shall be provided for all D C cabling on the Ground Mounted. Conduits / concealed cable trays shall be adequately secured onto the Ground Mounted /wall.
7. The AC cable type shall be PVC/ XLPE insulated, suitably armored, 1100V grade multi-stranded copper conductor. Appropriate colour coding shall be used.

8. 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.
9. The DC and AC cable so adequate electrical voltage and current ratings shall be also rated for 'in conduit wet and outdoor use'.
10. The total DC cable losses shall be maximum of 2% of the plant rated DC capacity over the specified ambient temperature range.
11. The DC and AC cable size shall be selected to maintain losses with in specified limits over the entire lengths of the cables.
12. DC cables from array combiner box on the Ground Mounted 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.
13. The DC and AC distribution boxes shall be wall mounted inside control room/open space.
14. DC distribution box shall incorporate DC disconnect switch, lightening surge protectors, any other protection equipment, screw type terminal strips and strain - relief cable glands.
15. AC distribution box shall in corporate A C circuit breaker, surge voltage protectors, Any other protection equipment, plant energy meter, screw type terminal strips and strain-relief cable glands.
16. The total AC cable losses shall be maximum of 1% of the plant AC output over the specified ambient temperature range.
17. All cable conduits shall be GI/HDPE type.
18. All cable trays shall be powder coated steel or GI or equivalent.

Civil

1. Bidders are required to visit the site & collect required data for work out estimates for such site specific structure, if any.
2. For structural purpose, the panels plus support system that works as a distortion- free integral structural unit.
3. The panel assembly should at most 5mx5m in plan area. The max height of panel above roof surface does not exceed 1.2m.
4. The vertical projection area of the longer side of the panels does not exceed W/100 in sq m where wiz the gross load of the panel assembling (weight of panels, connections,

frames, bracings, pedestals, wiring, circuitry etc.).

5. PV array shall be installed in the space free from any obstruction and /or shadow.
6. Drainage and roof treatment should not affected by the installation.
7. 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).
8. 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 onsides).
9. The maximum column spacing should be 8.5 ft c/c or less. The pedestal is placed directly on the roof or either on ground, over existing roof treatment, without making any structural connection to the roof surface or any other existing structure.
10. 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 base. The plan dimension of pedestal does not exceed 300mm x 300mm, and height does not exceed 300 mm.
11. Ample clearance shall be provided in the layout of the inverter and DC / AC distribution boxes for adequate cooling and ease of maintenance.
12. The Supplier will supply and install required size of Water Tank, pump, pipe etc. for cleaning the PV modules. Respective beneficiary will provide water piping from source to inlet of such water tank.
13. 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) Inter connection 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 pre cautions to be taken.

The array structure shall support SPV modules at a given orientation and absorb and transfer the mechanical loads to the Ground Mounted 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 number of modules as necessary in a row.
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 of 80 micron thickness of Zn coating or anodized aluminum 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 / stainless steel.
7. The support structure shall with stand 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 with stand operating environmental conditions for a period of minimum 25years.

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 MEDA, which will be certified by structural engineers.
11. The panel assembly structure should be installed in a manner to leave sufficient space for repair and maintenance aspects of the Ground Mounted, particularly for leakages.
12. Installation of panel assembly should not tamper with the water proofing of roofs.

ARRAY STRUCTURE

a) Hot dip galvanized (minimum of 80 Microns) MS mounting structures may be used for mounting the modules / panels / arrays. Each structure should have angle of inclination as per the site conditions to take maximum installation. 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 IS4759.

d) Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, and 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 had it will occupy minimum space without sacrificing the output from the SPV panels.

f) 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.

Electrical:

1. LT distribution grid specifications 415V +/ - 5%, 50Hz and frequency variation as per IE rules.
2. The output of the inverter shall be fed into 415V, 3 phases AC LT grid supplied via

LTMCCB.

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. Two time of day (TOD) 3 phase, digital AC load energy meter shall be installed one in the Main Distribution Box to monitor energy drawn by building load and other 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.

Data Acquisition System

1. Data Acquisition System shall be provided for solar wind hybrid power plant.
2. Computerized DC String / Array monitoring and AC output monitoring shall be provided as part of the inverter and/or string/array combiner box or separately.
3. String and array DC Voltage, Current and Power, Inverter AC output voltage and current (All 3 phases and lines), AC power (Active, Reactive and Apparent), Power Factor and AC energy (All 3 phases and cumulative) and frequency shall be monitored.
4. The time interval between two sets of data shall not be more than 3 minutes. (A minimum of 20 samples of data shall be recorded per hour)
5. Data Acquisition System shall have real time clock, internal reliable battery
6. Backup and 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 the digital AC energy meter.
8. The date shall be recorded in a common worksheet 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.
14. Remote Supervisory Control and data acquisition through SCADA or equivalent software at the purchasers location with latest software/hardware configuration and service connectivity for online / real time data monitoring/control complete to be supplied and operation and maintenance/control to be ensured by the supplier.
15. Disconnection and Islanding: Disconnection of the PV plant in the even to floss of the main grid supply is to be achieved by in built protection within the power conditioner; this may be achieved through rate of change of current, phase angle, unbalanced voltage or reactive load variants.
16. 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 and 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 output of both the PCUs to the ACDB/Grid should be provided. Automatic reconnection after the grid failure should restore.
17. 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 150km/hr.
6. Corrosion :high
7. Dust : moderate to high
8. Bird Interference : high

9. Bird Droppings : frequent and large
10. Trees: large and in abundance.

CONNECTIVITY

The maximum capacity for inter connection with the grid at a specific voltage level shall be as specified in the Distribution Code/Supply Code of the State and amended from time to time. Following criteria have been suggested for selection of voltage level in the distribution system for Ready reference of the solar suppliers.

Plant Capacity	**Connecting voltage**
Up to 10 kW	240V-single phase or 415V-three phase at the option of the consumer

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

Technical Specification for Wind Power plant

1. **Wind Aero Generator**

Wind Aero Generator	4.5kw [Multiple wind mills]
Model	Any MNRE Approved Model
Total Capacity IEC Power	4.5kw
IEC Annual Energy@5m/s	11000-11500 KWH
Power Output	As per the capacity of Aero Generator
Voltage / Frequency	200-240V / 50Hz @ rated RPM
Cut In Speed	< 3.0m/s
Rated Wind Speed	11 m/s
Survival Wind Speed	55-60 m/s
Over Speed	Angle Furling Dump Load And Manual
Generators	PM 3 phase alternator
No. Of Blades	03
Rotor Diameter	As Per The Capacity Of Aero Generator Use

Swept Area Sq.	Minimum 16 sq.m.
Blade Material	Carbon Fiber Composite Fiber Glass &Epoxy Bonding
Maximum Speed	50M/S
Drive System	Direct System
No Of Wind Turbines	1-2 [Depending Upon The Capacity Of Aero Generator]
Controller Output	96V, 120V,196V, 240V

2. **Tower for Wind turbine**

Tower Type	Monopole / Guy rope tilt able / tripod
Tower Height	18 mtrs
Make / Material of construction	MS
Finish	Duly Epoxy coated
No. Of Towers	1-2[depending upon the capacity of wind turbine used]
Hardware	High Tension
Tower Foundation	1000 x 1000 x 1000 mm

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

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 incentive. Minimum CUF of 15% should be maintained for a period of 5 years. Correction shall be applied based on available solar radiation.

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 global solar insolation in the Plane of Array (PoA) of 5 kWh/m^2 (5 Peak Sun Hours) for the day. For example: 9.5 kW PV power plant AC energy output shall be minimum of **35.625 kWh** (9.5 kW x 0.75 x 5 hrs.) for the day.

Operation and Maintenance (O&M)

1. Cleaning of solar PV modules with water, wet and dry mops :Weekly
2. DC String / Array and AC Inverter monitoring: Continuous and computerized.
3. AC Energy monitoring: Continuous and computerized.
4. Visual Inspection of the plant :Monthly
5. Functional Checks of Protection Components and Switchgear: Quarterly.
6. Spring Clean PV Array and Installation Area: Quarterly.
7. Inverter, data acquisition, energy meters and power evacuation checks: Half Yearly.
8. Support structure and terrace water-proofing checks: Yearly.
9. O & M log sheet shall be provided and maintained.
10. The repair / replacement work shall be completed 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 handover.

2. COMPREHENSIVE MAINTENANCE CONTRACT (CMC)

(i) The complete Solar PV Power Plant must be guaranteed against any manufacturing / design / installation defects for a minimum period of 5 years.

(ii) PV modules used in Solar PV Power Plant must be guaranteed for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.

(iii) During the CMC period, MNRE / MEDA / users will have all the rights to cross check the performance of the Solar PV Power Plant. MEDA may carry out the frequent inspections of the Solar PV Power Plant installed and randomly pick up its components to get them tested at Govt. / MNRE approved any test centre. If during such tests any part

is not found as per the specified technical parameters,

MEDA will take the necessary action. The decision of MEDA in this regard will be final and binding on the bidder.

Warranties and Guarantees

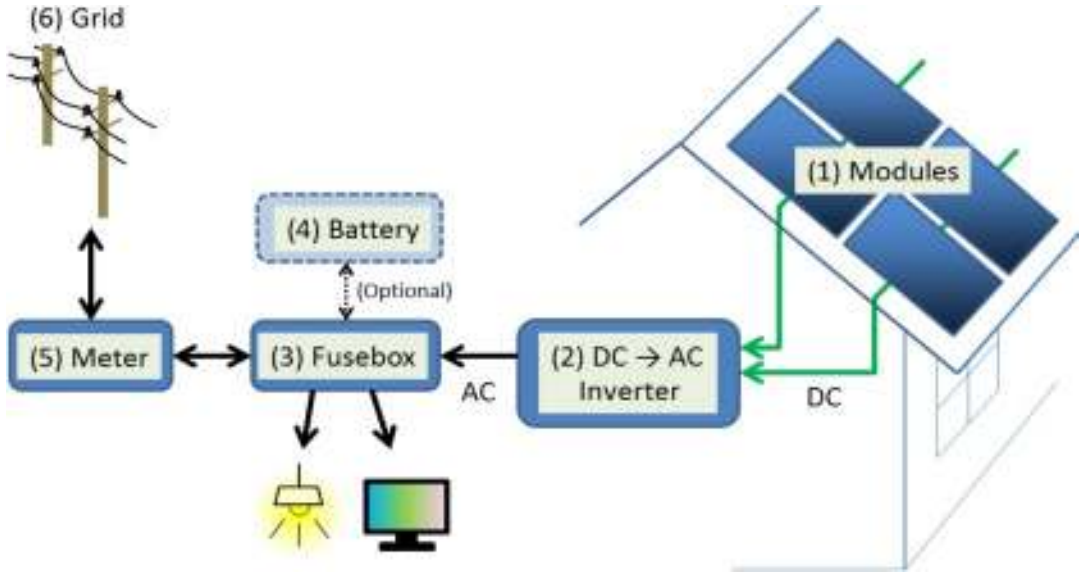
1. Solar Modules: Workmanship / product replacement for 25 years.
2. Solar Modules: 90% power output for 10 years & 80% power output for 25 years.
3. Inverter: Workmanship/product replacement for 5 years, service for 25 years
4. Power Evacuation and Metering Equipment: Workmanship / product replacement for 5 years, service for 5 years
5. BoS: Parts and Workmanship for 5 years, service for 5years.
6. Power Plant Installation : Workmanship for 5 years, service for 5years
7. PV Array Installation : Structural for 10years
8. Power plant power performance ratio-min75%
9. Power plant energy performance ratio-min.75%

Standards and Compliance

1. IEC60364-7-712: 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,IEC61701 – Operation in corrosive atmosphere
6. IEC 61215 : Crystalline Silicon PV Modules qualification
7. String/array junction boxes: IP65, Protection Class II, IEC 60439-1,3.
8. Surge Protection Devices: Type 2, DC 1000 V rated.
9. PV module / string / string combiner box interconnects: MC4 compatible DC 1000 V

rated.

10. The central inverter shall be rated for IP54.
11. The DC/AC distribution boxes shall be rated IP54.
12. The data acquisition systems shall be rated for IP54.
13. All DC and AC cables, conduits, cable trays, hardware: relevant IS.
14. Earthling System: relevant IS.
15. PV array support structure: relevant IS.
16. Quality Certification, Standards and Testing for Grid-Connected Ground Mounted Solar PV Systems/ Power Plants should be maintained as per Annexure-A.



QUALITY CERTIFICATION, STANDARDS AND TESTING FOR GRID- CONNECTED GROUND MOUNTED SOLAR PV SYSTEMS/ POWER PLANTS

Quality certification and standards for grid-connected Ground Mounted solar PV systems are essential for the successful mass-scale implementation of this technology. It is also imperative to Putin place an efficient and rigorous monitoring mechanism, adherence to these standards. Hence, all components of grid-connected Ground Mounted solar PV system/ plant must conform to the relevant standards and certifications given below:

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

IEC 60255-27	Measuring relays and protection equipment – Part 27: Product safety requirements
IEC 60068- 2 /IEC 62093 (as applicable)	Environmental Testing of PV System – Power Conditioners and Inverters
Fuses	
IS/IEC 60947(Part 1, 2 & 3), EN50521	General safety requirements for connectors, switches, circuit breakers (AC/DC): a) Low-voltage Switchgear and Control-gear, Part 1: General rules
IEC 60269-6	Low-voltage fuses - Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems
	b) Low-Voltage Switchgear and Control-gear, Part 2:Circuit Breakers c) Low-voltage switchgear and Control-gear, Part 3: Switches, disconnectors, switch disconnectors and fuse-combination units d) EN 50521: Connectors for photo voltaic systems –Safety requirements and tests
Surge Arrestors	
BFC 17 -102: 2011	Lightening Protection Standard
IEC 60364-5-53/ IS 15086-5 (SPD)	Electrical installations of buildings - Part 5 -53: Selection and erection of electrical equipment - Isolation, switching and control
IEC 61643- 11: 2011	Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems - Requirements and test methods
Cables	
IEC 60227 /IS694, IEC 60502 /IS1554 (Part 1 & 2) / IEC 69947 (as applicable)	General test and measuring method for PVC (Polyvinyl chloride) insulated cables (for working voltages up to and including 1100 V, and UV resistant for outdoor installation)

BS EN 50618	Electric cables for photovoltaic systems (BT(DE/NOT)258), mainly for DC Cables
Earthing /Lightning	
IEC 62561 Series (Chemical earthing) (as applicable)	IEC 62561-1 Lightning protection system components (LPSC) - Part 1: Requirements for connection components IEC 62561-2 Lightning protection system components (LPSC) - Part 2: Requirements for conductors and earth electrodes IEC 62561-7 Lightning protection system components (LPSC) - Part 7: Requirements for earthling enhancing compounds
Junction Boxes	
IEC 60529	Junction boxes and solar panel terminal boxes shall be of the thermo-plastic type with IP 65 protection for outdoor use, and IP 54 protection for indoor use
Energy Meter	
IS 16444 or as specified by the DISCOMs	A.C. Static direct connected watt-hour Smart Meter Class 1 and 2 — Specification (with Import & Export/Net energy measurements)
Solar PV Roof Mounting Structure	
IS 2062/ IS 4759	Material for the structure mounting

Note Equivalent standards may be used for different system components of the plants.

Annexure – A

FORMATE FOR PERFORMANCE BANK GUARANTEE

To:

Divisional General Manager

Krishi Audyogik Sahakari Sangh, Near, NDCC Bank,

Dwarka Point, Nashik. 422211.

WHEREAS *[name and address of Contractor]* (hereinafter called "the Contractor") has undertaken, in pursuance of Work Order No. _____Tender No. for works DGM/MEDA-NSK/ITDP- SOLAR WIND HYBRID/2022-23/03 to Design, manufacture, supply, installation, testing and commissioning with five years comprehensive maintenance contract of total 38 kw grid connected solar - wind hybrid power plant with battery backup, 9.5 kw each at 4 Ashram school under ITDP, Nashik, district Nashik in the state of Maharashtra. (hereinafter referred to as the contract of works) and as described in the Bidding Data in Maharashtra State for works 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 one month.

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

Format - A

POWER OF ATTORNEY

(On Rs. 100/- stamp paper)

Know all men by these presents, We, ……., Reg. Address: ……. ……..…. do hereby irrevocably constitute, nominate, appoint and authorise Mr./Mrs./Ms. ……..……., Contact No. +91-……., Email.....……@..... presently employed with us and holding the position of ……..……, as our true and lawful attorney (herein after 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. DGM/MEDA-NSK/ITDP- SOLAR WIND HYBRID/2022-23/03 for Design, manufacture, supply, installation, testing and commissioning with five years comprehensive maintenance contract of total 38 kw grid connected solar - wind hybrid power plant with battery backup, 9.5 kw each at 4 Ashram school under ITDP, Nashik, district Nashik 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,
General Manager, (Divisional Office Nashik)
Maharashtra Energy Development Agency,
Krishi Bhavan, Ground Floor, Near N.D.C.C. Bank, Dwarka Point, New Mumbai-Agra Road, Nashik – 422 011, Contact No.: 0253-2598685;
Email id - domedanasik@mahaurja.com

Reference: E-tender no. DGM/MEDA-NSK/ITDP- SOLAR WIND HYBRID/2022-23/03

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, Divisional Office Nashik, 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 Nashik, Maharashtra Energy Development Agency in selection of Bidders will be final and binding to us.

For
(Company Name)

Name of signing authority / Designation / Place / Date

FORMAT - C

DETAILS OF BANKER

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

For

(Company Name)

Place -

Date -

Name of signing authority / Designation

FORMAT - D

Bidder's Information Sheet

Sr. No.	Particulars	
1.	Name of Firm	
2.	Detailed Mailing Address of firm	
3.	Firm Status (PSU/Incorporate / Ltd / Pvt. Ltd/LLP/Partnership/proprietor)	
4.	Contact Person Name, Designation &	
5.	Contact No.	
6..	E-mail Address for correspondence	
7.	Firm Website Address	
8.	Firm Registration No/ ROC	
9.	Establish Year of firm	
10.	PAN No.	
11.	GST No.	
12.	Turnover (in Rs.) 2018-19, 2019-20, 2020-21 (In Lac Rs.)	
13.	Company Profile (<100 words)	
14.	Skilled manpower	
15	Experience in Solar Min High Mast (<100 words)	
16	Experience in other solar projects (<100 words)	
17	Solar related Product Range	
18	Experience in guarantee, Maintenance& after sales	

Sr. No.	Particulars	
1.	Name of Firm	
	services (years)	
19	Accreditation / Special Achievement, if any by firm / Bidder	
22	List of ISI, ISO, Other cert.	

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 Govt. of Maharashtra/ MEDA.

Signature of Bidder

Name

Designation

Company

Date:

FORMAT - E

Annual Turnover Certificate

This is to certify that, the ..... (Name of firm) registered as /under having registered Address.....and asses 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 the last 3 Years of FY 2019-20, 2020-21 & 2021-22	
Financial Year	**Rs. in Lakhs**
2019-20	
2020-21	
2021-22	
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 Seal

(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

Experience for supply and Commissioning of Grid Solar Connected SPV Power Plant

Sr. No.	Name of Project	Capacity	Date of Commissioning / current status of Project

Signature of Bidder

Name

Designation

Company

Date

FORMAT - G

SITE VISIT REPORT LETTER

(To be submitted on letterhead of bidder)

Date: _____

To,
Divisional General Manager,
Maharashtra Energy Development Agency,
MEDA, Nashik.

Sub : Site Visit Report for Design, manufacture, supply, installation, testing and commissioning with five years comprehensive maintenance contract of total 38 kw grid connected solar - wind hybrid power plant with battery backup, 9.5 kw each at 4 Ashram school under ITDP, Nashik, district Nashik in the state of Maharashtra.

Ref. : DGM/MEDA-NSK/ITDP- SOLAR WIND HYBRID/2022-23/03

Sir,

This has reference to above referred tender of Design, manufacture, supply, installation, testing and commissioning with five years comprehensive maintenance contract of total 38 kw grid connected solar - wind hybrid power plant with battery backup, 9.5 kw each at 4 Ashram school under ITDP, Nashik, district Nashik in the state of Maharashtra. I/We declare that we have visited the sites.

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,

(Signature of Bidder)

Name of Bidder ----------
Designation ----------
Seal:

Signatures of
Headmaster ----------

Name----------

Signature of MEDA, Nashik Officials

Name----------

FORMAT - H

Check List

Sr. No.	Part - A	Particulars	Yes/ No	Page No.
1	1st Cover page	Filled in copy of this Check List indicating page no.		
2	Annexure – I (a) Annexure – I (b)	a) Copy details for Tender document fees b) Copy details for Earnest Money Deposit(EMD)		
3	Annexure - II	Tender document(duly stamped and signed by bidder's authorised person on each page)		
4	Annexure – III	Registration Certificate of Firm.		
5	Annexure – IV	Copy of Registration Certificates for GST & Copy of PAN Card.		
6	Annexure - V	Power of Attorney (on Rs100/- stamp paper) (Refer Format - A)		
7	Annexure – VII	Declaration (on company letter head) (Refer Format – B)		
8.	Annexure – VIII	Banker's Details (Refer Format - C).		
9	Annexure - IX	Bidder's Information (Refer Format - D).		
10	Annexure - X	C. A. Certificate (on C. A.'s letter head) (Refer Format - E) (submit copy of IT returns for last three financial years, supporting with summery of balance sheet / auditor's report)		
11	Annexure - XI	List of Project (submit self-attested copies of both work order and completion certificate issued by end user / client on their official letter head; refer Section II of Tender, Clause no III of 2. for eligibility criteria) (Refer Format - F)		
12	Annexure – XII	Site Visit Report (on company letter head) It is mandatory to upload site visit report duly signed by concern authority at Site (Refer Format - G)		

Note:

- Above information / documents are to be uploaded / annexed as a **SINGLE PDF** in prescribed format (Refer Format A to J) in above **SEQUENCE.**
- **Bid without any of above document is liable for rejection**.
- Upload necessary documents only, so as to restrict Bid with maximum 220 pages; **readable scanned file for resolution not less than100 dpi.**
- **Submit financial BID, separately**.

1	**Part - B**	Separate duly filled soft copy of Excel file "BOQ" for financial bid		

PART - B

Reference No.: DGM/MEDA-NSK/ITDP- SOLAR WIND HYBRID/2022-23/03

FINANCIAL BID

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

SOLAR WIND HYBRID POWER PLANT

Financial offer for the Design, manufacture, supply, installation, testing and commissioning with five years comprehensive maintenance contract of total 38 kw grid connected solar - wind hybrid power plant with battery backup, 9.5 kw each at 4 Ashram school under ITDP, Nashik, as per scope of work, Tech. requirement, Specifications & terms and conditions etc… of Technical Bid, of the tender.

Sr. No.	Place of Installation	Total Cost (Rs)
1.	Design, manufacture, supply, installation, testing and commissioning with five years comprehensive maintenance contract of total 38 kw grid connected solar - wind hybrid power plant with battery backup, 9.5 kw each at 4 Ashram school under ITDP, Nashik, district Nashik in the state of Maharashtra.	**96,48,812/-**
	Final Total Price in Words	

NOTES:

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 liable to be rejection of bid.