

## **TENDER FOR**

**Design, Manufacture, Supply, Installation, Testing and Commissioning with Five Years Comprehensive Maintenance Contract of Grid Connected Roof Top Solar PV System with Remote Monitoring system at various sites of JJ Hospital, Mumbai, Maharashtra  
Cumulative capacity - 160KWp**

Name of sites and capacity of plants are:

a) C.J Building

JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra –  
Capacity – 20 kWp (2 x 10KWp)-for two consumer

b) Skin Building, Ward 43

JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra  
Capacity- 20KWp (2 x 10KWp) - for two consumer

c) Balaram Building

JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra capacity-  
40KWp

d) Main Building

JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra  
Capacity- 30KWp

e) OPD Building

JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra  
Capacity -30KWp

f) PWD Building

JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra –  
Capacity-20KWp

**Tender Reference No.: MEDA-DIVMU/JJ/2020-21**

## **SECTION-I**

### **BID INVITATION**

#### **Brief Description of Tender Process**

- **Divisional General Manager, Maharashtra Energy Development Agency, Divisional office Mumbai**, on behalf of **MEDA (the Employer)**, invites eligible bidder to submit a tender in accordance with the provisions of this Tender Document. In this Tender Document, the term "Bidder", which expression shall, unless repugnant to the context, include all parties who have submitted tender in response to this Tender Document within the stipulated time frame for submission.
- The Bidders shall submit the bids in two parts by following e-tendering process described in tender document. First part comprises of the technical bid and the second part comprise of the financial bid in accordance with this Tender Document.
- In terms of the Tender Document, a Bidder will be required to deposit non-refundable Tender document fee.

MEDA will open the technical bid of the Bidder, by e-tendering process. The financial bid will be opened of those bidders which will be qualified in the technical bid.

### BIDDING INFORMATION

1	Tender Reference No.	<b>MEDA-DIVMU/JJ/2020-21</b>
2	Tender can be downloaded	Between 17/12/2020 14:00 Hrs to 31/12/2020; 17:00 Hrs
3	Estimated Cost	<b>Rs. 79,20,000/-</b> (Including taxes)
4	Tender document fee	<b>Rs. 15,000/-</b> (Including taxes)
5	Earnest Money Deposit (EMD)	<b>Rs.1,50,000/-</b> (Including taxes)
6	Date & Time of Pre Bid Meeting	All participants are requested to send their queries, if any, on or before 22/12/2020 up to 15:00 Hrs at email: dgmmumbai@mahaurja.com Pre bid meeting – 22/12/2020 15:00 Hrs at MEDA, Div. office Mumbai
7	Last date & Time for submission of Bid	31/12/2020 at 17:00 Hrs.
8	Date & Time of opening Technical Bid	04/01/2021 at 12:00 Hrs.
9	Security Deposit	3% of the Project Cost and Demand Draft in favor of Maharashtra Energy Development Agency Divisional Office Mumbai
10	Address for communication and Venue for Tender opening	Divisional General Manager, (Divisional Office Mumbai) Maharashtra Energy Development Agency, 1012-A, 10th Floor, Embassy Centre, Nariman Point Mumbai, Maharashtra - 400021, Phone No: 022 – 22876436, E-mail ID: - dgmmumbai@mahaurja.com

- ❑ If any technical difficulties arise while filling up e-tender, please contact MEDA. It is compulsory to pay tender document fee, EMD through e-payment gateway at <https://mahatenders.gov.in> by **online** only.
- ❑ Eligible bidders can upload the Tenders through maha-e-tender portal of G o M: <https://mahatenders.gov.in>

## **SECTION-II**

### **INFORMATION AND INSTRUCTION TO BIDDERS**

**Divisional General Manager, Divisional office Mumbai, Maharashtra Energy Development Agency**, 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:

a) C.J Building

JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra –  
Capacity – 20 KW (2 x 10KWp)-for two consumer

b) Skin Building, Ward 43

JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra  
Capacity- 20KWp (2 x 10KWp)- for two consumer

c) Balaram Building

JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra capacity-  
40KWp

d) Main Building

JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra  
Capacity- 30KWp

e) OPD Building

JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra  
Capacity -30KWp

f) PWD Building

JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra –  
Capacity-20KWp

Mumbai, Maharashtra (Herein after referred to as the contract of works) and as described in the tender document on '**Turnkey Contracts**' under Tender No: **MEDA-DIVMU/JJ/2020-21**

## 1. Scope of Work

The Scope of work is as below:

Design, Manufacture, Supply, Installation, Testing and Commissioning with Five Years Comprehensive Maintenance Contract of:

- C.J Building:  
JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra –  
Capacity - 20KW (2 x 10KWp)-for two consumer
- Skin Building, Ward 43:  
JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra  
Capacity- 20KWp (2 x 10KWp)- for two consumer
- Balaram Building:  
JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra  
capacity- 40KWp
- Main Building:  
JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra  
Capacity- 30KWp
- OPD Building:  
JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra  
Capacity -30KWp
- PWD Building:  
JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra –  
Capacity-20KWp

Mumbai, Maharashtra, on 'Turnkey Contract' and as described in the tender document.

- Free replacement of defective components of systems within Comprehensive Maintenance period (CMC) of 5 years after commissioning of the project for efficient running of the system.

- 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 work.
- Detailed planning for smooth execution of project.
- Selected Bidder shall be bound to operate and maintain the system as per the rules, regulations and modalities as prescribed by MNRE and MEDA for the effective functioning of the project.
- **Time is the essence in completing the Work:** The successful Bidder will be required to complete the work within the stipulated time as specified in the tender document.
- The bidder shall ensure that SPV power plant should be commissioned within **90 Days** from the date of issue of work order. Bid shall be complete and cover all works described in the tender. However if any item of works required for completing the project shall be deemed to be included in bidder's scope; irrespective of whether it is specifically mentioned or not in the tender document.
- Bidder should obtain the statutory permissions from statutory bodies wherever required for execution of works.
- Partial bid or bid which does not cover the entire scope of the project will be treated as incomplete and not responsive to the terms and conditions of tender are liable to be rejected.

## **2. Eligibility Criteria:**

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

- They should provide valid registration certificate (approval) issued by MNRE and IEC certificate of SPV Module & Inverter and test report from authorized test centre of MNRE, Gol or Bidder should be registered with MEDA under the MH-GCRT Program Or shall be valid MNRE Channel Partner.

- Shall manufacture/supply the material (module, inverter & battery) only as per the standards mention in tender document.
- The Bidder should have installed & commissioned 20 KW capacity single and 160 KW cumulative Grid-connected roof top net metering system projects. The list of project 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. MEDA reserves right to ask for generation report.
- 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.
- Must have field service setup to provide goods after sale services including necessary repair and maintenance 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 in Jurisdiction of Maharashtra is must. Accordingly bidder has to submit the details thereof.
- Bidder must submit the address, company personnel details of registered office in Maharashtra State which will be responsible for conducting O&M within the CMC period briskly.
- **Joint venture/consortium/subcontract/subletting is not permitted.**
- Must have turnover of minimum 1 Crores during last three financial years (i.e. 2017-18, 2018-19 & 2019-20). The Bidder has to submit Balance sheet and certificate duly certified by Chartered Accountant in support of the claim.

### **3. Standards / Certificates**

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

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

#### 4. Instructions

- Bidder shall upload his information, experience certificates, test reports and other such relevant document's specified in the list of other important documents on the portal <https://mahatenders.gov.in>.
- Joint Venture is not permitted.
- The bidder should visit the site & should conduct technical survey along with concerned person of user agency.
- 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 Bid submitted by bidders for detailed scrutiny. During evaluation of the technical bids, MEDA may at its discretion ask the bidders for clarification.
- In case bidder does not fulfill the technical bid the financial bid shall not be opened & he shall be disqualified from further bidding process.
- Price Proposals of bidders qualifying above conditions shall be subsequently opened.
- Bid submitted without EMD will be rejected. Bidder would need to upload the required documents through electronic mode only.
- For any Clarification /onlinesupport please contact at mail id [dgmmumbai@mahaurja.com](mailto:dgmmumbai@mahaurja.com)
- MEDA reserves the right
  1. To reject or accept any or all tenders without assigning any reasons thereof.
  2. The work order is not transferable. Subletting is not allowed.
  3. 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 conditions.



## **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 data shall be in English Language only. Supporting documents and printed literature furnished by the bidder if provided in another language 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 in tender**

The tender prepared by the Bidder shall be uploaded in two parts:

- a) Technical Bid
- b) Financial Bid

### Part I - Technical Proposal:

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

Sr. No.	Particulars
1	Copy of receipt of tender fee
2	Copy of receipt for EMD (MSME Allowed)
3	Duly stamped and signed Tender Document (E-Sign is permitted)
4	Industry /Firm/Company registration certificate (MSME allowed). Valid certification of Manufacturer/ Distributor/ Dealer required as per Eligibility Criteria.
5	Copy of PAN Card
6	Copy of GST registration
7	Power of attorney; for company's authorized person (Refer Format – A )
8	Self-Certification of No Barr/non failure/blacklisted (Refer Format – B)
9	Bank details of bidder (Refer Format - C)
10	Bidder's Information Sheet (Refer Format - D)
11	Details of set-up for after sales service (Refer Format - E)
12	Financial credentials of bidder (Refer Format - F), along with: <ol style="list-style-type: none"> <li>1. Scanned copy of IT returns for last three financial years, supporting with</li> <li>2. Summary of balance sheet / auditor's report. Only profit making organizations are eligible.</li> <li>3. Overall Average Annual Turnover of the Company/Firm/ Corporation in the last three financial years should be at least <b>Rs.1 Crores</b> (Rupees One Crores only) (This must be the individual Company's turnover and not that of any group of Companies; A summarized sheet of turnover for last three years with average turnover certified by registered CA should be compulsorily enclosed)</li> </ol>
13	Experience for installation and commissioning of SPV power plants / list of projects (Refer Format - G). Along with : <ol style="list-style-type: none"> <li>a) Scanned copies of work / purchase orders received for completed projects and performance reports from beneficiary along with RMS Details. Incomplete Work Orders/ Purchase orders will not be accepted.</li> <li>b) The Bidder should have installed &amp; commissioned 20 KW capacity single and 160 KW cumulative Grid-connected roof top net metering system projects. 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. MEDA reserves right to ask for generation report.</li> <li>c) Satisfactory certificate along with contact details of concern authority at installation (Beneficiary/Client) is to be submitted. Representative of MEDA &amp;/OR representative of appointed consultant by MEDA for this assignment will / may visit such installation. Bidders to arrange necessary permissions.]</li> </ol>
14	Site visit report (Refer Format – H) <b>Note: Individual report should be submitted for all the mentioned sites.</b>
15	Details of proposed / offered system (Refer Format - I) <b>Note: Individual report should be submitted for all the mentioned sites.</b>
16	Details for output / power generation – assumed & assured from proposed / offered system (Refer Format - J). <b>Note: Individual report should be submitted for all the mentioned sites.</b>
17	Brochure for offered solar systems along with test certificates compiling applicable Standards as per guidelines issued by MNRE. And details of Guaranties & Warranties.
18	Manufacture/supply the material (module & inverter) only as per standards mention in tender document (Annexure – A). <b>Should provide valid IEC certificate of SPV Module &amp; Inverter and test report from authorized test center of MNRE, Gol.</b>
19	Format of Commitment from the Bidder

The Bidder is expected to follow 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:

1. The bidder should quote the price as against total tender estimate as shown in the tender document.
2. The price quoted in the bid will be ***inclusive of all*** taxes, duties, insurance and all incidental charges for successful design, supply, installation, commissioning along with comprehensive maintenance for five years of Solar PV Power Plant.
3. Prices shall be quoted in Indian Rupees only.
4. In no circumstances, escalation in the prices will be entertained.
5. 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) and forfeiting of EMD**

#### **A) Earnest Money Deposit:**

The Earnest Money Deposit 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.

In above event, L1 Bidder has to submit original copy(s) of certificate/registration for review / verification, before issuing of Work Order. 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 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.

If the Bidder fails / refuses to execute the contract, MEDA shall have full right to claim damages thereof in addition to the forfeiture of EMD

**C) SECURITY DEPOSIT:**

1. The Bidder shall furnish security deposit at 3% of the total contract value within 15 bank working days after issuing of work order by way of demand draft of nationalized bank in favor of Maharashtra Energy Development Agency, payable at Mumbai.
2. Failure to comply with the terms of security deposit shall result into cancellation of work order without any further reference to the Bidder and the EMD shall be forfeited.
3. The security deposit shall be liable to be forfeited wholly or partly at the sole discretion of the MEDA, if the Bidder either fails to execute the work of above projects or fails to fulfill the contractual obligations or fails to settle in full his dues to MEDA.
4. 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.
5. MEDA is empowered to recover from the security deposit for any sum due or 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.
6. The security deposit shall be released to the Bidder after completion of 5 years of CMC satisfactorily. Also Bidder has to give the guaranteed generation for 5 years at available solar radiation. If systems produce less generation below guaranteed generation then penalty of Rs. 6/- per unit will be charged from your Security Deposit and will be released accordingly.

**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.

As per Government Resolution BhanKhaS -2014/P.K.-82/Part-III/Industries dated 01/12/2016 The tender out of the price band that is -20% to +10% of tender cost will be rejected.

## **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 Mumbai Jurisdiction only.

## **11. Period of Validity of Bid**

- Bids shall remain valid for 90 days after the date of opening of Technical Bid.
- 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 permitted to modify its bid.

## **12. Mode of submission of bids**

- The Bids shall be submitted electronically on 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 ask the Bidder to submit the hard copy of any of the document/information submitted on e-tender platform.

## **13. 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.

## **14. Pre Bid Meeting:**

Pre bid meeting shall be called at office of Maharashtra Energy Development Agency, Divisional Office Mumbai to clarify doubts, after one week of floating tender on site **<https://mahatenders.gov.in>** before submission of final tender document.

## 15. 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 MEDA and will be black listed.

## 16. Criteria for Bids evaluation

### Technical Evaluation

- Only Technical Proposals 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. ***During evaluation of Bids, MEDA, may, at its discretion, ask the bidders for clarification of their Proposals.***

### Financial Evaluation

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

- At the outset, the price bids of all the Bidders who are technically qualified in technical evaluation shall be opened
- The bidder's names, the Bid Prices, total amount of each bid and other details as MEDA may consider appropriate, will be announced and recorded by MEDA at the opening.
- Bidder that has quoted the lowest price (inclusive of all the taxes/duties) without breaching any technical specification as per terms and condition shall be declared as the preferred Bidder.

- The work orders shall be issued to the successful bidder whoever qualifies in the complete process as mentioned above.

#### **17. 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.

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

#### **19. Terms of Payment:**

- a. 80% of the total project 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 Geo-tagging Photographs of the system and system components and with all technical test reports of system and system components along with submission of Insurance policy documents effective from date of commissioning for CMC period.
- b. 20% of the total project cost shall be released on submission of next two month successful performance report in prescribed format generated automatically through Remote real time Monitoring System as well as manually which should be duly certified by Officer of MEDA, authorized person of Beneficiary and submission of Performance Bank Guarantee of 15% of total project cost from any Nationalized Bank valid for period of 5 years and submission of Guarantee and Warrantee cards to the beneficiary.

**Deduction:-**

- i. The TDS at the source will be deducted as per the Govt. rules and regulations.
- ii. MEDA will issue necessary certificates of TDS deduction

Note that if bidder does not provide insurance against Labour and Material, MEDA will process insurance at “Director of Insurance” and will deduct 1% of contract value against insurance claimed by them and 1% of contract value deduction against “Labour Welfare Cess” from payment towards successful bidder.

**20. TIME FRAME:**

The time frame for the completion of work is **90 Days** from the date of issue of work order.

**21. 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 0.5% (half percent) of project cost per week, maximum up to 10% of the total cost of the project 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 amount required will be deducted from the balance amount of the previous successful bidder.

### **SECTION – III**

#### **General Terms and Conditions**

##### **General Terms and Conditions:**

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

- a) Joint Venture is not permitted.
- b) Bidder shall be responsible for any damage occurred, if any, to other installations of the existing office building / establishment / area at site during the course of work.
- c) The Bidder should provide appropriate tools and equipment's to the workmen and ensure that those are in proper working condition and the workmen use the appropriate tools and take precaution "PLEASE NOTE THAT ANY ACCIDENT TO THE WORK MEN / PUBLIC / ANIMALS / PROPERTY BOTH MOVABLE AND IMMOVABLE SHALL BE ENTIRE AND SOLE RESPONSIBILITY OF THE BIDDER AND ANY PROCEEDING ARISING OUT OF THE SAME SHALL BE AT THE BIDDER'S RISK AND COST, MAHARASHTRA ENERGY DEVELOPMENT AGENCY (MEDA) OR ITS EMPLOYEES WILL NOT BE RESPONSIBLE FOR ANY SUCH INCIDENT".
- d) Bidder should provide necessary manufacture's test certificates for materials being used for the work. Power curve of all the panels erected by manufacturers shall be provided to the MEDA.
- e) The selected Bidder is bound to work as per the guideline provided by MEDA from time to time. Guidelines, if issued, in future by MEDA, the changes proposed will also be applicable without augmentation in project cost till the completion of 5 years period.
- f) The Bidder shall carry out the work strictly according to the technical specifications and complete the work within stipulated time.

- g) It is the responsibility of Bidder to submit the reports of systems installed & commissioned and certificates for undertaking the responsibility of maintenance of the systems to MEDA and Beneficiary. Bidder shall also impart training to the user for regular Operation & Maintenance of the system and certificate in this respect should be submitted.
- h) Bidders should give Guarantee of the system 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.
- i) 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.
- j) 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 or his nominee shall be final.
- k) 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.
- l) MEDA will not pay any interest on any balance amount of the Bidders.
- m) During the inspection, if any deviations in Technical Specifications are observed, MEDA reserves right to test any solar module / system at any authorized test center of MNRE. Bidder shall provide the facilities for getting the sample tested & the supplier shall bear the cost for the same.
- n) 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 balance amount of the supplier or from his Security Deposit.
- o) At the time of inspection, manufacturer or supplier has to submit the I.V. curves and test reports of supplied PV modules to respective officer.
- p) The Wiring must be carried out in casing-capping / conduit which are suitable as per site condition.
- q) It is responsibility of the Bidder to ensure satisfactory performance of the system throughout CMC Period.

- r) 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 and Service Engineer.
- s) 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.
- t) If previous performance of any Bidder is found unsatisfactory, he will be disqualified.
- u) If any information / confirmation on any point of these tender conditions are required Bidder may contact / write to Divisional General Manager, MEDA, giving tender reference no. etc.
- v) In the event of dispute during installation & commissioning of the systems related to the work and documents, decision of the Divisional General Manager, MEDA shall be final.
- w) The Divisional General Manager, MEDA reserves the rights to distribute the work among the Bidders who are eligible and have submitted the offers.
- x) Once the Bidder submit his offer and subsequently not interested to work, in such case MEDA will forfeit his EMD amount.
- y) 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.
- z) The Divisional General Manager, MEDA reserves the right to select L2 Bidder i.e. second lowest Bidder to complete the work, if L1 i.e. lowest Bidder fails to complete the work and also fulfill tender conditions, subject to L2 bidder accept the work at L1 price
- aa) It is binding on the successful Bidder to submit original certificates, documents required by MEDA
- bb) Net Metering Policy: Bidder has to comply with Net Metering policy in the state and bidder has to complete all formalities towards net metering application and any load enhancement.

cc) Net Meter, Generation Meter and Check Meter should be as per MERC Net Metering Regulation dated 30/12/2019.

## **2) Communications**

- Wherever provision is made for the giving or issue of any notice, instruction, consent, approval, certificate or determination by any person, unless otherwise specified such communication shall be in writing and shall not be unreasonably withheld or delayed.
- Project review coordination meetings between the Beneficiary, MEDA's Representative and Contractor shall be conducted on a regular basis or as and when required by the MEDA, at locations decided by the MEDA, for work progress and plans for completing the remaining Works, to deal with matters affecting the progress of the Works, and to decide on responsibility for actions required to be taken. Decisions taken and instructions issued during the coordination meetings, as recorded in the Minutes, shall have the same force and effect as if they were written communications issued in this accordance.

## **3) Manner of Execution**

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

- The Contractor/Agency should successfully complete the project within time frame set out by the work order issuing authority and mutually agreed between Contractor / Agency and work order issuing authority.
- MEDA shall not be responsible for any loss or damage of any material when installing SPV power plants.
- Undertake necessary activities during the warranty period as set out in this Contract.

- It is the responsibility of successful bidder to make the insurance of SPV system from the date of commissioning for the CMC period by following standard procedure

#### **4) Application**

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

#### **5) Standards**

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

#### **6) Inspection:**

- Successful bidder to submit the design engineering documents, Calculations & Drawings within a weeks' time after issue of work order for review & approval by MEDA.
- The projects will be inspected for quality at any time during commissioning or after the completion of the project by MEDA.
- Bidder shall inform MEDA in writing when any portion of the work is ready for inspection (site wise) giving sufficient notice to enable MEDA to depute officials to inspect the same without affecting the further progress of the work. The work shall not be considered in accordance with the terms of the contract until the competent person from MEDA certifies in writing.
- The cost of Inspection shall be borne by Bidder only.
- Bidder has to strictly follow the specifications given in the work order while carrying out the execution of work. During inspection if it is found that Bidder has deviated from the specifications, Bidder has to do the alteration /

modification / reconstructions as per the given specifications at his own cost & risk.

#### **7) Transportation**

Where the Contractor/Agency is required under the contract to transport the goods to specified locations defined as Project sites, transport to such places including insurance, shall be 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 given time period 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 E-mail , 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 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 climatic 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) Danger plates:**

The bidder shall provide at least 8 Danger Notice Plates at each project site of 200mmX 150 mm made of mild steel sheet, minimum 2 mm thick and vitreous enameled white on both sides and with inscription in signal red color on front side as required. The inscription shall be in English and local language.

### **16) Control Room:**

Installation of Inverters shall be done at safe weatherproof location at each site for SPV power plants.

### **17) Insurance:**

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



- ② The bidder shall also take appropriate insurance during O&M / CMC period for 100% of offered price.
- ② The Bidder shall also take insurance for Third Party Liability covering loss of human life, engineers and workmen and also covering the risks of damage to the third party/ material/ equipment/ properties during execution of the Contract. Before commencement of the work, the Bidder will ensure that all its employees and representatives are covered by suitable insurance against any damage, loss, injury or death arising out of the execution of the work or in carrying out the Contract. Liquidation, Death, Bankruptcy etc., shall be the responsibility of bidder.
- ② The bidder shall provide insurance coverage ex-factory until commissioning and acceptance for replacement or repair of any part of the consignment due to damage or loss.

### **18) Warranties and Guarantees:**

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

## SECTION-IV

### TECHNICAL SPECIFICATIONS OF SPV POWER PLANT

On-grid Solar Rooftop Photo Voltaic (SPV) power plant consists of SPV array, Module Mounting Structure, Power Conditioning Unit (PCU) consisting of Maximum Power Point Tracker (MPPT), Inverter and Controls & Protections, interconnect cables and switches. PV Array is mounted on a suitable structure. Grid tied SPV system. Components and parts used in the SPV power plants including the PV modules, metallic structures, cables, junction box, switches, PCUs etc., should conform to the BIS or IEC or international specifications, wherever such specifications are available and applicable. Capacities of all important components should be equal or greater than the capacity of respective Solar PV Plant.

Available Shadow free Space and GPS Co-ordinates

a) **C.J Building**

20 kWp (2 x 10KWp) – **(2000 Sq Ft for two meters)**

**Latitude: 18.9631542; Longitude: 72.8319003**

JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra

b) **Skin Building, Ward 43**

20 kWp (2 x 10KWp) **(2000 Sq Ft for two meters)**

**Latitude: 18.9635; Longitude: 72.8325**

JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra

c) **Balaram Building**

40KWp **(4000 Sq Ft)**

**Latitude: 18.96320; Longitude: 72.83528**

JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra

d) **Main Building**

30KWp **(3000 Sq Ft)**

**Latitude: 18.96320; Longitude: 72.83528**

JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra

e) **OPD Building**

30KWp **(3000 Sq Ft)**

**Latitude: 18.962769; Longitude: 72.834614**

JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra

f) **PWD Building**

20KWp **(2000 Sq Ft)**

**Latitude: 18.9635; Longitude: 72.8325**

JJ Hospital Road Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra

**Note: (Online site visit is permitted due to Covid 19 situation)**

➤ **SOLAR PHOTOVOLTAIC MODULES :-**

- a. The PV modules used should be made in India.
- b. The PV modules used must qualify to the latest edition of IEC PV module qualification test or equivalent BIS standards Crystalline Silicon Solar Cell Modules IEC 61215/IS14286. In addition, the modules must conform to IEC 61730 Part-1 - requirements for construction & Part 2 – requirements for testing, for safety qualification or equivalent IS.
- c. For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701.
- d. The total solar PV array capacity should not be less than allocated capacity (kWp) and should comprise of solar crystalline modules of minimum 250 Wp and above wattage. Module capacity less than minimum 250 watts shall not be accepted.
- e. Adequate protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided.
- f. PV modules must be tested and approved by one of the IEC authorized test centres.
- g. The module frame shall be made of corrosion resistant materials, preferably having anodized aluminium.
- h. The EoI holder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power in his EoI. MEDA/owners shall allow only minor changes at the time of execution.
- i. Other general requirement for the PV modules and subsystems shall be the Following:
  - The rated output power of any supplied module shall have tolerance within +/-3%.

- The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary by more than 2 (two) per cent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
- The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-pass diode. The box shall have hinged, weather proof lid with captive screws and cable gland entry points or may be of sealed type and IP-65 rated.
- I-V curves at STC should be provided by EoI holder.

➤ **SOLAR PV MODULES :-**

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

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

➤ **WARRANTIES :-**

**Material Warranty:**

- a. Material Warranty is defined as: The project developer should warrant the Solar Module(s) to be free from the defects and/or failures specified below for a period not less than five (05) years from the date of sale to the original customer ("Customer")

- b. Defects and/or failures due to manufacturing
- c. Defects and/or failures due to quality of materials
- d. Non conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the project developer will repair or replace the solar module(s), at the Owners sole option.

**Performance Warranty:**

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

➤ **ARRAY STRUCTURE :-**

- a. Hot dip galvanized MS mounting structures may be used for mounting the modules / panels / arrays. Minimum thickness of galvanization should be at least 120 microns.
- b. Each structure should have angle of inclination as per the site conditions to take maximum insolation. However to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.
- c. The Mounting structure shall be so designed to withstand the speed for the wind zone of the location where a PV system is proposed to be installed (wind speed of 150 km/hour). It may be ensured that the design has been certified by a recognized Lab/ Institution in this regard and submit wind loading calculation sheet to MEDA. Suitable fastening arrangement such as grouting and calming should be provided to secure the installation against the specific wind speed.
- d. The mounting structure steel shall be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance of latest IS 4759.

- e. Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts.
- f. **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.
- g. Aluminium frames should be avoided for installations in coastal areas.
- h. The fasteners used should be made up of stainless steel. The structures shall be designed to allow easy replacement of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels.
- i. Regarding civil structures the EoI holder need to take care of the load bearing capacity of the roof and need arrange suitable structures based on the quality of roof.
- j. The total load of the structure (when installed with PV modules) on the terrace should be less than 60 kg/m<sup>2</sup>.
- k. The minimum clearance of the structure from the roof level should be 300 mm.

➤ **JUNCTION BOXES (JBs) :-**

- a. The junction boxes are to be provided in the PV array for termination of connecting cables. The J. Boxes (JBs) shall be made of GRP / FRP / Powder Coated Aluminium / cast aluminium alloy with full dust, water & vermin proof arrangement. All wires / cables must be terminated through cable lugs. The JB's shall be such that input & output termination can be made through suitable cable glands.
- b. Copper bus bars / terminal blocks housed in the junction box with suitable termination threads conforming to IP65 standard and IEC 62208 Hinged door with EPDM rubber gasket to prevent water entry. Single / double compression cable

glands. Provision of earthings. It should be placed at 5 feet height or above for ease of accessibility.

- c. Each Junction Box shall have High quality Suitable capacity Metal Oxide Varistors (MOVs) / SPDs, suitable Reverse Blocking Diodes. The Junction Boxes shall have suitable arrangement monitoring and disconnection for each of the groups.
- d. Suitable markings shall be provided on the bus bar for easy identification and the cable ferrules must be fitted at the cable termination points for identification.
- e. All fuses shall have DIN rail mountable fuse holders and shall be housed in thermoplastic IP 65 enclosures with transparent covers.

➤ **DC DISTRIBUTION BOARD :-**

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

➤ **AC DISTRIBUTION PANEL BOARD :-**

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

- d. All the Panel's shall be metal clad, totally enclosed, rigid, floor mounted, air - insulated, cubical type suitable for operation on three phase / single phase, 415 or 230 volts, 50 Hz
- e. The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.
- f. All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.
- g. Should conform to Indian Electricity Act and rules (till last amendment).
- h. All the 415 AC or 230 volts devices / equipment like bus support insulators, circuit breakers, SPDs, VTs etc., mounted inside the switchgear shall be suitable for continuous operation and satisfactory performance under the following supply conditions

Variation in supply voltage	+/- 10 %
Variation in supply frequency	+/- 3 Hz

➤ **PCU / ARRAY SIZE RATIO :-**

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

➤ **PCU / INVERTER :-**

- a. As SPV array produce direct current electricity, it is necessary to convert this direct current into alternating current and adjust the voltage levels to match the grid voltage. Conversion shall be achieved using an electronic Inverter and the associated control and protection devices. All these components of the system are termed the



“Power Conditioning Unit (PCU)”. In addition, the PCU shall also house MPPT (Maximum Power Point Tracker), an interface between Solar PV array & the Inverter, to the power conditioning unit/inverter should also be DG set interactive. If necessary. Inverter output should be compatible with the grid frequency. Typical technical features of the inverter shall be as follows:

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

Inverter efficiency (minimum)	> 90% (In case of less than 10 kW)
THD	< 3%
PF	> 0.9

- a. Three phase PCU/ inverter shall be used with each power plant system (10kW and/or above) but in case of less than 10kW single phase inverter can be used.
- b. PCU / inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown.
- c. The output of power factor of PCU inverter is suitable for all voltage ranges or sink of reactive power, inverter should have internal protection arrangement against any sustainable fault in feeder line and against the lightning on feeder.
- d. Built-in meter and data logger to monitor plant performance through external computer shall be provided.
- e. **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.
- f. Channel Partner shall be responsible for galvanic isolation of solar roof top power plant (>100kW) with electrical grid or LT panel.
- g. In PCU/Inverter, there shall be a direct current isolation provided at the output by means of a suitable isolating transformer. If Isolation Transformer is not incorporated with PCU/Inverter, there shall be a separate Isolation Transformer of suitable rating provided at the output side of PCU/PCU units for capacity more than 100 kW.
- h. The PCU/ inverter generated harmonics, flicker, DC injection limits, Voltage Range, Frequency Range and Anti-Islanding measures at the point of connection

to the utility services should follow the latest CEA (Technical Standards for Connectivity Distribution Generation Resources) Guidelines.

- i. The power conditioning units / inverters should comply with applicable IEC/ equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683/IS 61683 and IEC 60068-2 (1,2,14,30)/ Equivalent BIS Std.
- j. The MPPT units environmental testing should qualify IEC 60068-2 (1, 2, 14, 30)/ Equivalent BIS std. The junction boxes/ enclosures should be IP 65 (for outdoor)/ IP 54 (indoor) and as per IEC 529 specifications.
- k. The PCU / inverters should be tested from the MNRE approved test centres / NABL / BIS / IEC accredited testing- calibration laboratories. In case of imported power conditioning units, these should be approved by international test houses.

➤ **INTEGRATION OF PV POWER WITH GRID :-**

- a. The output power from SPV would be fed to the inverters which converts DC produced by SPV array to AC and feeds it into the main electricity grid after synchronization. In case of grid failure, or low or high voltage, solar PV system shall be out of synchronization and shall be disconnected from the grid. Once the DG set comes into service, PV system shall again be synchronized with DG supply and load requirement would be met to the extent of availability of power. 4 pole isolation of inverter output with respect to the grid/ DG power connection need to be provided.

➤ **DATA ACQUISITION SYSTEM / PLANT MONITORING :-**

- a. Data Acquisition System shall be provided for each of the solar PV plant above 10 kWp capacity.

- b. 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.
- c. 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.
- d. The following parameters are accessible via the operating interface display in real time separately for solar power plant:
  - I. AC Voltage.
  - II. AC Output current.
  - III. Output Power
  - IV. Power factor.
  - V. DC Input Voltage.
  - VI. DC Input Current
  - VII. Time Active.
  - VIII. Time disabled.
  - IX. Time Idle.
  - X. Power produced
  - XI. Protective function limits (Viz-AC Over voltage, AC Under voltage, Over frequency, Under frequency ground fault, PV starting voltage, PV stopping voltage.
- e. 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.
- f. PV array energy production: Digital Energy Meters to log the actual value of AC/ DC voltage, Current & Energy generated by the PV system provided. Energy meter along with CT/PT should be of 0.5 accuracy class.
  - g. 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.
  - h. 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.
  - i. Computerized AC energy monitoring shall be in addition to the digital AC energy meter.
  - j. The data shall be recorded in a common work sheet chronologically date wise. The data file shall be MS Excel compatible. The data shall be represented in both tabular and graphical form.
  - k. All instantaneous data shall be shown on the computer screen.
  - l. Software shall be provided for USB download and analysis of DC and AC parametric data for individual plant.
  - m. Provision for instantaneous Internet monitoring and download of historical data shall be also incorporated.
  - n. 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.
  - o. Ambient / Solar PV module back surface temperature shall be also monitored on continuous basis.

- p. 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.
- q. Remote Monitoring and data acquisition through Remote Monitoring System software at the owner / MEDA location with latest software/hardware configuration and service connectivity for online / real time data monitoring / control complete to be supplied and operation and maintenance / control to be ensured by the Eol holder. Remote Monitoring and data acquisition through Remote Monitoring System software at the owner / MEDA location with latest software/hardware configuration and service connectivity for online / real time data monitoring / control complete to be supplied and operation and maintenance / control to be ensured by the Eol holder.
- r. The Eol holders shall be obligated to push real-time plant monitoring data on a specified intervals (say 15 minute) through open protocol at reciver location (cloud server) in XML/JSON format, preferably. Suitable provision in this regard will be intimated to the Eol holders.

➤ **TRANSFORMER “IF REQUIRED” & METERING :-**

- a. Dry/oil type relevant kVA, 11kV/415V, 50 Hz Step up along with all protections, switch gears, Vacuum circuit breakers, cables etc. along with required civil work.
- b. The bi-directional electronic energy meter (0.5 S class) shall be installed for the measurement of import/Export of energy.
- c. The Eol holder must take approval/NOC from the Concerned DISCOM for the connectivity, technical feasibility, and synchronization of SPV plant with distribution network before commissioning of SPV plant.

d. Reverse power relay shall be provided by EoI holder (if necessary), as per the local DISCOM requirement.

➤ **POWER CONSUMPTION:**

a. Regarding the generated power consumption, priority need to give for internal consumption first and thereafter any excess power can be exported to grid. Finalization of tariff is not under the purview of MEDA or MNRE. Decisions of appropriate authority like DISCOM, state regulator may be followed.

➤ **PROTECTIONS :-**

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

➤ **LIGHTNING PROTECTION :-**

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

➤ **SURGE PROTECTION :-**

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

➤ **EARTHING PROTECTION :-**

- a. Each array structure of the PV yard should be grounded/ earthed properly as per IS:3043-1987. In addition the lighting arrester/masts should also be earthed inside the array field. Earth Resistance shall be tested in presence of the representative of Department/MEDA as and when required after earthing by calibrated earth tester. PCU, ACDB and DCDB should also be earthed properly.
- b. Earth resistance shall not be more than 5 ohms. It shall be ensured that all the earthing points are bonded together to make them at the same potential.

➤ **GRID ISLANDING :-**

- a. In the event of a power failure on the electric grid, it is required that any independent power-producing inverters attached to the grid turn off in a short period of time. This prevents the DC-to-AC inverters from continuing to feed power into small sections of the grid, known as “Islands.” Powered Islands present a risk to workers who may expect the area to be unpowered, and they may also damage grid-tied equipment. The Rooftop PV system shall be equipped with islanding protection. In addition to disconnection from the grid (due to islanding protection) disconnection due to under and over voltage conditions shall also be provided.
- b. A manual disconnect 4-pole isolation switch beside automatic disconnection to grid would have to be provided at utility end to isolate the grid connection by the utility personnel to carry out any maintenance. This switch shall be locked by the utility personnel.

➤ **CABLES :-**

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



- a. Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards
- b. Temp. Range:  $-10^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$ .
- c. Voltage rating 660/1000V
- d. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation
- e. Flexible
- f. Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum (2%)
- g. For the DC cabling, XLPE or, XLPO insulated and sheathed, UV- stabilized single core multi-stranded flexible copper cables shall be used; Multi-core cables shall not be used.
- h. For the AC cabling, PVC or, XLPE insulated and PVC sheathed single or, multi-core multi-stranded flexible copper cables shall be used; Outdoor AC cables shall have a UV-stabilized outer sheath.
- i. The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use. Outer sheath of cables shall be electron beam cross-linked XLPO type and black in colour.
- j. The DC cables from the SPV module array shall run through a UV- stabilized PVC conduit pipe of adequate diameter with a minimum wall thickness of 1.5mm.
- k. Cables and wires used for the interconnection of solar PV modules shall be provided with solar PV connectors (MC4) and couplers.
- l. All cables and conduit pipes shall be clamped to the rooftop, walls and ceilings with thermo-plastic clamps at intervals not exceeding 50 cm; the minimum DC

cable size shall be 4.0 mm<sup>2</sup> copper; the minimum AC cable size shall be 4.0 mm<sup>2</sup> copper. In three phase systems, the size of the neutral wire size shall be equal to the size of the phase wires.

- m. Cable Routing / Marking: All cable/wires are to be routed in a GI cable tray and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable easily identified. In addition, cable drum no. / Batch no. to be embossed/ printed at every one meter.
- n. Cable Jacket should also be electron beam cross-linked XLPO, flame retardant, UV resistant and black in colour.
- o. All cables and connectors for use for installation of solar field must be of solar grade which can withstand harsh environment conditions including High temperatures, UV radiation, rain, humidity, dirt, salt, burial and attack by moss and microbes for 25 years and voltages as per latest IEC standards. DC cables used from solar modules to array junction box shall be solar grade copper (Cu) with XLPO insulation and rated for 1.1kV as per relevant standards only.
- p. The ratings given are approximate. EoI holder to indicate size and length as per system design requirement. All the cables required for the plant shall be provided by the EoI holder. Any change in cabling sizes if desired by the EoI holder shall be approved after citing appropriate reasons. All cable schedules/ layout drawings shall be approved prior to installation.
- q. Multi Strand, Annealed high conductivity copper conductor PVC type 'A' pressure extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armoured cable for underground laying. All cable trays including covers to be provided. All cables conform to latest edition of IEC/ equivalent BIS Standards as specified below: BoS item / component Standard Description

Standard Number Cables General Test and Measuring Methods, PVC/XLPE insulated cables for working Voltage up to and including 1100 V, UV resistant for outdoor installation IS /IEC 69947.

- r. The total voltage drop on the cable segments from the solar PV modules to the solar grid inverter shall not exceed 2.0%.
- s. The total voltage drop on the cable segments from the solar grid inverter to the building distribution board shall not exceed 2.0%.

➤ **CONNECTIVITY :-**

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

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

- a. The maximum permissible capacity for rooftop shall be 1 MW for a single net metering point.
- b. Utilities may have voltage levels other than above, DISCOMS may be consulted before finalization of the voltage level and specification be made accordingly.

➤ **TOOLS & TACKLES AND SPARES :-**

- a. After completion of installation & commissioning of the power plant, necessary tools & tackles are to be provided free of cost by the EoI holder for maintenance purpose.

List of tools and tackles to be supplied by the EoI holder for approval of specifications and make from MEDA/ owner.

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

➤ **DANGER BOARDS AND SIGNAGES :-**

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

➤ **FIRE EXTINGUISHERS :-**

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

➤ **DRAWINGS & MANUALS :-**

- a. Two sets of Engineering, electrical drawings and Installation and O&M manuals are to be supplied. EoI holders shall provide complete technical data sheets for each

equipment giving details of the specifications along with make/makes in their EoI along with basic design of the power plant and power evacuation, synchronization along with protection equipment.

- b. Approved ISI and reputed makes for equipment be used.
- c. For complete electro-mechanical works, EoI holders shall supply complete design, details and drawings for approval to owners before progressing with the installation work.

➤ **PLANNING AND DESIGNING:**

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

➤ **DRAWINGS TO BE FURNISHED BY CONTRACTOR**

- a. The Contractor shall furnish the following drawings Award/Intent and obtain approval
- b. General arrangement and dimensioned layout.
- c. Schematic drawing showing the requirement of SV panel, Power conditioning Unit(s)/ inverter, Junction Boxes, AC and DC Distribution Boards, meters etc.
- d. Structural drawing along with foundation details for the structure.
- e. Itemized bill of material for complete SV plant covering all the components and associated accessories.
- f. Layout of solar Power Array
- g. Shadow analysis of the roof

➤ **SOLAR PV SYSTEM ON THE ROOFTOP FOR MEETING THE ANNUAL ENERGY REQUIREMENT :-**

The Solar PV system on the rooftop of the selected buildings will be installed for meeting upto 90% of the annual energy requirements depending upon the area of rooftop available and the remaining energy requirement of the buildings will be met by drawing power from grid at commercial tariff of DISCOMs.

➤ **SAFETY MEASURES :-**

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

➤ **DISPLAY BOARD :-**

- a. The EoI holder has to display a board at the project site (above 10 kWp) mentioning the following:
  - a. Plant Name, Capacity, Location, Type of Renewable Energy plant (Like solar wind etc.), Date of commissioning, details of tie-up with transmission and distribution companies, Power generation and Export FY wise.
  - b. Financial Assistance details from MEDA/MNRE/Any other financial institution apart from loan. This information shall not be limited to project site but also be displayed at site offices/head quarter offices of the successful EoI holder.
  - c. The size and type of board and display shall be appropriate.

**General Information**

1. The operating life of the plant shall be minimum 25 years.

2. 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.
  
3. 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.
  
4. The individual Solar PV array shall be installed on existing roof top of the building using fixed PV array support structure.
  
5. The individual string / array combiner boxes and DC cabling shall be installed on roof top of the building.
  
6. The inverter shall be installed in the control room / open space provided in the building.
  
7. 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.

## Annexure- A

### QUALITY CERTIFICATION, STANDARDS AND TESTING

#### SOLAR PV SYSTEMS/ POWER PLANTS

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

<b>Solar PV Modules/Panels</b>	
IEC 61215/ IS 14286	Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV) Modules
IEC 61646/ IS 16077	Design Qualification and Type Approval for Thin-Film Terrestrial Photovoltaic (PV) Modules
IEC 62108	Design Qualification and Type Approval for Concentrator Photovoltaic (CPV) Modules and Assemblies
IEC 61701- applicable	As 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
EC 62716	Photovoltaic (PV) Modules – Ammonia (NH3) Corrosion Testing <b>(Advisory - As per the site condition like dairies, toilets)</b>
IEC 61730-1,2	Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for Construction, Part 2: Requirements for Testing
IEC 62804 (Draft Specifications)	Photovoltaic (PV) modules - Test methods for the detection of potential-induced degradation (PID). IEC TS 62804-1: Part 1: Crystalline silicon <b>(Mandatory for system voltage is more than 600 VDC and advisory for system voltage is less than 600 VDC)</b>
IEC 62759-1	Photovoltaic (PV) modules – Transportation testing, Part 1: Transportation and shipping of module package units



<b>Solar PV Inverters</b>	
IEC 62109-1, IEC 62109-2	Safety of power converters for use in photovoltaic power systems Safety compliance (Protection degree IP 65 for outdoor mounting, IP 54 for indoor mounting)
IEC/IS 61683 <b>(For stand Alone System)</b>	Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions)
BS EN 50530  (Will become IEC 62891) <b>(For Grid Interactive system)</b>	Overall efficiency of grid-connected photovoltaic inverters:  This European Standard provides a procedure for the measurement of the accuracy of the maximum power point tracking (MPPT) of inverters, which are used in grid-connected photovoltaic systems. In that case the inverter energizes a low voltage grid of stable AC voltage and constant frequency. Both the static and dynamic MPPT efficiency is considered.
IEC 62116/ UL 1741/ IEEE 1547	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 (1, 2, 14, 27, 30 & 64)	Environmental Testing of PV System – Power Conditioners and Inverters
<b>IEC 61000- 2,3,5</b>	Electromagnetic Interference (EMI), and Electromagnetic Compatibility (EMC) testing of PV Inverters (as applicable)
<b>Fuses</b>	
IS/IEC 60947 (Part 1, 2 & 3), EN 50521	General safety requirements for connectors, switches, circuit breakers (AC/DC)
IEC 60269-6	Low-voltage fuses - Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems
<b>Surge Arrestors</b>	
IEC 61643-11:2011 / IS 15086-5(SPD)	Low-voltage surge protective devices - Part 11: Surge protective devices connected to low- voltage power systems – Requirements and test methods
<b>Cables</b>	
IEC 60227/IS 694, IEC 60502/IS 1554 (Part 1 & 2)	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
<b>Earthing /Lightning</b>	
IEC 62561 Series( Part 1,2 &&) (Chemical earthing)	IEC62561-1 Lightning protection system components (LPSC) - Part 1: Requirements for connection components  IEC62561-2 Lightning protection system components (LPSC) - Part 2: Requirements for conductors and earth electrodes  IEC 62561-7 Lightning protection system components (LPSC) - Part 7: Requirements for earthing enhancing compounds
<b>Junction Boxes</b>	
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
<b>Energy Meter</b>	
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)
<b>Solar PV Roof Mounting Structure</b>	

IS 2062/IS 4759

Material for the structure mounting

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

## Annexure- B

### Sample / Standard Format for PERFORMANCE BANK GUARANTEE

To,

Divisional General Manager, (Divisional Office Mumbai)

Maharashtra Energy Development Agency,

1012-A, 10th Floor, Embassy Centre, Nariman Point Mumbai, Maharashtra

400021, Phone No: 022 – 22876436,

E-mail ID: - dgmmumbai@mahaurja.com

**WHEREAS** \_\_\_\_\_ [name and address of contractor] (herein called “the Contractor”) has undertaken in pursuance of work order no. \_\_\_\_\_ **Tender No. MEDA-DIVMU/JJ/2020-21 for works** \_\_\_\_\_, dated \_\_\_\_\_ 2020 to design, manufacture, supply, installation, testing and commissioning with five years comprehensive maintenance contract of

**a) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra  
C.J Building - 20KW (2 x 10KWp)**

**b) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra  
Skin Building, Ward 43 -20KWp (2 x 10KWp)**

**c) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra  
Balaram Building-40KWp**

**d) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra  
Main Building- 30KWp**

**e) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra  
OPD Building- 30KWp**

**f) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra  
PWD Building- 20KWp**

(hereinafter referred to as the contract of works) and as described in the Bidding Data in Maharashtra State for works under single point responsibility **"Turnkey Contracts"** basis (hereinafter called "the **Contract**");

**AND WHEREAS** it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligation in accordance with the Contract;

**AND WHEREAS** we have agreed to give the Contractor such a Bank Guarantee; **NOW THEREFORE** we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of \_\_\_\_\_ [*amount of Guarantee*] \_\_\_\_\_ [*in words*], and we undertake to pay you, through our branch office at \_\_\_\_\_ upon your first written demand and without cavil or argument, any sum or sums within the limits of \_\_\_\_\_ [*amount of Guarantee*] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

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

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

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

**Format A**

**POWER OF ATTORNEY**  
(On Rs100/- stamp paper)

Know all men by these presents, We, ....., Reg. Address:.....  
..... do hereby irrevocably constitute, nominate,  
appoint and authorize Mr./Mrs./Ms. ....,  
Contact No. +91-....., Email.....@.....  
presently employed with us and holding the position of ....., as our true and lawful  
attorney (hereinafter referred to as the "Attorney") to do in our name and on our behalf, all  
such acts, deeds and things as are necessary or required in connection with or incidental to  
participate in e-tendering process for e-tender no. **MEDA-DIVMU/JJ/2020-21** Design,  
Manufacture, Supply, Installation, Testing And Commissioning With Five Years Comprehensive  
Maintenance Contract of 160kWp SPV Power Plant (with/ without elevated structure), at  
**a) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra C.J  
Building - 20KW (2 x 10KWp)**  
**b) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra Skin  
Building, Ward 43 -20KWp (2 x 10KWp)**  
**c) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra Balaram  
Building-40KWp**

**d) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra Main Building- 30KWp**

**e) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra OPD Building- 30KWp**

**f) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra PWD Building- 20KWp** , 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 rectify 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,

Divisional General Manager, (Divisional Office Mumbai)  
Maharashtra Energy Development Agency,  
1012-A, 10th Floor, Embassy Centre, Nariman Point Mumbai, Maharashtra  
400021, Phone No: 022 – 22876436,  
E-mail ID: - [dgmmumbai@mahaurja.com](mailto:dgmmumbai@mahaurja.com)

Reference: E-tender no. **MEDA-DIVMU/JJ/2020-21**

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 General Manager, Divisional Office Mumbai, Maharashtra Energy Development Agency, may terminate the assigned contract immediately.

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

7. We agree that the decision of Divisional General Manager, Divisional Office Mumbai, Maharashtra Energy Development Agency in selection of Bidders will be final and binding to us.

For  
(Company Name)

Name of signing authority / Designation / Place / Date

**Format - C**

**BANK DETAILS**

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

For

(Company Name)

Name of signing authority / Designation / Place / Date

Format – D

### BIDDER'S INFORMATION

Sr. No.	Particulars	Description
1	Name of Firm	
2	Detailed address of firm	
3	Firm Status (PSU/ Incorporate/ Ltd./ Pvt. Ltd./ LLP/ Partnership/ Proprietary)	
4	Contact Person Name & Designation	
5	Contact No.	
6	E-Mail Address for correspondence	
7	Firm website address	
8	Firm Registration No./ ROC Establish year of Firm	
9	PAN No.	
10	GST No.	

11	Validity for MNRE Rating (Certificate)	
12	Turnover (in year ) [for last 3 years]	
13	Company Profile (<100 words)	
14	Skilled Manpower	
15	Experience in SPV Power Plant (<100 WORDS)	
16	Experience in other solar projects (<100 words)	
17	Solar related Product Range	
18	Experience in Guarantee Maintenance & after sales services (Years)	
19	Accreditation/ Special achievements, if any by Firm/ Bidder	
20	List of ISI, ISO, other cert.	

**Format – E**

**DETAILS FOR O & M TEAM**

<b>Sr. No.</b>	<b>Particulars</b>	
1	Name of Concern Authority for Operation & Maintenance/ Operation Head for Installed System	
2	Contact No. (Landline and Mobile No.)	
3	Email Id.	
4	Detailed Address for correspondence (Local Branch Office; Separate setup for Operation & Maintenance, if any)	
5	Details & No. of Qualified & Experienced Technical Experts	
6	Details & No. of Skilled labour	



7	Details & No. of Unskilled labour
---	-----------------------------------

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

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

For

(Company Name)

Name of signing authority / Designation / Place / Date

**Format - F**

**TURNOVER CERTIFICATE**

(On C.A.'s letter head)

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

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

<b>Annual Turnover Data for last 3 Years</b>
--

<b>(FY 2017-18, 2018-19 and 2019-20)</b>	
<b>Year</b>	<b>Rupees in Lakhs</b>
FY 2017-18	
FY 2018-19	
FY 2019-20	
<b>Total</b>	

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

For

(Name of C.A. Firm)

Seal

Name of signing authority (C.A.)

Place:

Date:

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

**Format – G**

**LIST OF PROJECTS**

(Grid connected / off grid Solar P V Power Generation Plants)

Sr. No.	Name of Beneficiary and address with E-mail Id and Contact No. (Landline & Mobile No.)	Plant Capacity (KWp)	Date for commissioning / Current Status of Project (Attach certificate by user Agency)	RMS ID	Password


For  
(Company Name)

Name of signing authority / Designation / Place / Date

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

**Format – H**

**SITE VISIT REPORT**

(To be submitted on letter head of bidder)

Date:

**(Submit Individual Site visit report for each site. Online site visit is permitted due to Covid 19 situation)**

To,

Divisional General Manager,  
Maharashtra Energy Development Agency, (Divisional Office Mumbai)  
1012-A, 10th Floor, Embassy Centre, Nariman Point Mumbai, Maharashtra  
400021, Phone No: 022 – 22876436,

E-mail ID: - dgmmumbai@mahaurja.com

Reference: E-tender no. **MEDA-DIVMU/JJ/2020-21**

**Sub.: Site Visit Report for design, manufacture, supply, installation, testing and commissioning with five years comprehensive maintenance contract of 160 kWp On grid at JJ Hospital**

Respected Sir/Madam,

This has reference to above referred tender of electrification of

- a) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra C.J Building - 20KW (2 x 10KWp)
- b) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra Skin Building, Ward 43 -20KWp (2 x 10KWp)
- c) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra Balaram Building-40KWp
- d) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra Main Building- 30KWp
- e) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra OPD Building- 30KWp
- f) JJ Hospital Road, Noor Baug, Nagpada, Mumbai Central, Mumbai, Maharashtra PWD Building- 20KWp to be electrified through Solar Power. I / We hereby declare that we have visited the site.

I / We made ourselves acquainted with site conditions, approach to site, requirement of Roof-top structure / land, soil conditions, availability of water, requirement of tender conditions etc.

I / We verified all details required to execute the projects. I / We have no problems in undertaking the projects and complete them in the given time period.

Thanking you

Yours faithfully,

Seal:

(Signature of Bidder)

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

Designation: .....

**Format - I**

**DETAILS OF OFFERED SYSTEM**

Sr. No.	Particulars	Capacity
		Quantity
		Make
1.	Module Mounting Structure	

2.	Solar PV modules	
3.	PCU	
4.	Array Junction Box	
5.	DC Cables	
6.	Distribution Boards / Panels	
7.	AC Cables	
8.	Lightening Arrestor	
9.	Earthing Equipments	
10.	Fire Detection & Protection System / Fire Extinguishers	
11.	Tools & Tackles required for installation, testing, operation & maintenance of entire 40 kWp SPV Systems	

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

**Format – J**

**DATA FOR ASSURED POWER GENERATION**

Sr. No.	Power Generation During #	On-grid
1.	Min. total peak hour	
2.	Min. total for 1 <sup>st</sup> year	

3.	Min. total for 2 <sup>nd</sup> year	
4.	Min. total for 3 <sup>rd</sup> year	
5.	Min. total for 4 <sup>th</sup> year	
6.	Min. total for 5 <sup>th</sup> year	
7.	Min. total for 10 <sup>th</sup> year	
8.	Min. total for 15 <sup>th</sup> year	
9.	Min. total for 20 <sup>th</sup> year	
10.	Min. total for 25 <sup>th</sup> year	

**Note:“#”** Energy generation /Power production in (AC) units at application end by offered SPV system; considering ideal conditions / climatic conditions for proposed location; as per reference Data available by various reputed International / Gol institutes.

**Format: Commitment from the Bidder**

(To be submitted separately on Company’s Letter Head)

We here by confirm that from propose plant system, Grid connected solar PV Plant at different Government Buildings at Mumbai, we will provide the assured generation of-----units per month at energy meter in control

cabin/room as certified by joint meter reading of manufacturer's representative and user's representative.

However for 5 years we hereby commit to pay an amount of **Rs. 6/-** per unit as compensation to MEDA Mumbai, Dist. Mumbai for the amount of units unable to supply against the guaranteed generation.

**Date:**

**Place:**

**Signature of the Tenderer  
Seal**

**Checklist:**

<b>Sr. No.</b>	<b>Particulars</b>	<b>Page No.</b>
1	Copy of receipt of tender fee	
2	Copy of receipt for EMD	
3	Duly stamped and signed Tender Document (E-Sign is permitted)	
4	Industry /Firm/Company registration certificate (MSME allowed).	

5	Copy of PAN Card	
6	Copy of GST registration	
7	Power of attorney; for company's authorized person (Refer Format – A )	
8	Self-Certification of No Barr/non failure/blacklisted (Refer Format – B)	
9	Bank details of bidder (Refer Format - C)	
10	Bidder's Information Sheet (Refer Format - D)	
11	Details of set-up for after sales service (Refer Format - E)	
12	Financial credentials of bidder (Refer Format - F), along with: <ul style="list-style-type: none"> <li>4. Scanned copy of IT returns for last three financial years, supporting with</li> <li>5. Summary of balance sheet / auditor's report. Only profit making organizations are eligible.</li> <li>6. Overall Average Annual Turnover of the Company/Firm/ Corporation in the last three financial years should be at least <b>Rs.1 Crore</b> (Rupees One Crores only) (This must be the individual Company's turnover and not that of any group of Companies; A summarized sheet of turnover for last three years with average turnover certified by registered CA should be compulsorily enclosed)</li> </ul>	
13	Experience for installation and commissioning of SPV power plants / list of projects (Refer Format - G). Along with : <ul style="list-style-type: none"> <li>d) Scanned copies of work / purchase orders received for completed projects and performance reports from beneficiary along with RMS Details. Incomplete Work Orders/ Purchase orders will not be accepted.</li> <li>e) The Bidder should have installed &amp; commissioned 20 KW capacity single and 160 KW cumulative Grid-connected roof top net metering system projects. 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. MEDA reserves right to ask for generation report.</li> <li>f) Satisfactory certificate along with contact details of concern authority at installation (Beneficiary/Client) is to be submitted. Representative of MEDA &amp;/OR representative of appointed consultant by MEDA for this assignment will / may visit such installation. Bidders to arrange necessary permissions.]</li> </ul>	
14	Site visit report (Refer Format – H) <b>Note: Individual report should be submitted for all the mentioned sites.</b>	
15	Details of proposed / offered system (Refer Format - I) <b>Note: Individual report should be submitted for all the mentioned sites.</b>	
16	Details for output / power generation – assumed & assured from proposed / offered system (Refer Format - J). <b>Note: Individual report should be submitted for all the mentioned sites.</b>	
17	Brochure for offered solar systems along with test certificates compiling applicable Standards as per guidelines issued by MNRE. And details of Guaranties & Warranties.	
18	Manufacture/supply the material (module & inverter) only as per standards mention in tender document (Annexure – A). <b>Should provide valid IEC certificate of SPV Module &amp; Inverter and test report from authorized test center of MNRE, Gol.</b>	
19	Format of Commitment from the Bidder	

**Note:**

- ☐ Above information / documents are to be uploaded / annexed and flagged 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 200 pages; readable scanned file for resolution not less than 100 dpi.
- ☐ Submit financial BID, separately.