



MAHASAMRUDDHI RENEWABLE ENERGY LIMITED

**(An SPV of Maharashtra State Road Development Corporation Ltd.)
(GOVERNMENT OF MAHARASHTRA UNDERTAKING)**

Request for Proposal (RfP)

For

Design, Engineering, Supply, Construction, Erection, Testing & Commissioning and Comprehensive O&M of cumulative 5 MW (AC) Ground Mounted Solar PV Power Plant at village Bhilkheda Taluka Karanja Lad, District Washim (Interchange No. 8) at Chainage 182.400 km along Hindu Hrudaysamrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg

January, 2022

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DISCLAIMER

The information contained in this Request for Proposal document (the “RFP”) or subsequently provided to Bidder(s), whether verbally or in documentary or any other form by or on behalf of the **Mahasamruddhi Renewable Energy Limited** (hereinafter referred to as “MREL or the Authority”) or any of its employees or advisors, is provided to Bidder(s) on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided.

This RFP is not an Agreement and is neither an offer nor invitation by the Authority to the prospective Bidders or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in making their financial offers (BIDs) pursuant to this RFP. This RFP includes statements, which reflect various assumptions and assessments arrived at by the Authority in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This RFP may not be appropriate for all persons, and it is not possible for the Authority, its employees or advisors to consider the investment objectives, financial situation and particular needs of each party who reads or uses this RFP. The assumptions, assessments, statements and information contained in the Bidding Documents, may not be complete, accurate, adequate or correct. Each Bidder should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this RFP and obtain independent advice from appropriate sources.

Information provided in this RFP to the Bidder(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Authority accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.

The Authority, its employees and advisors make no representation or warranty and shall have no liability to any person, including any Applicant or Bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way for participation in this BID Stage.

The Authority also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this RFP. The Authority may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this RFP.



The issue of this RFP does not imply that the Authority is bound to select a Bidder or to appoint the Selected Bidder JV or Contractor, as the case may be, for the Project and the Authority reserves the right to reject all or any of the Bidders or BIDs without assigning any reason whatsoever.

The Bidder shall bear all its costs associated with or relating to the preparation and submission of its BID including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by the Authority or any other costs incurred in connection with or relating to its BID. All such costs and expenses will remain with the Bidder and the Authority shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the BID, regardless of the conduct or outcome of the Bidding Process.

Place: Mumbai

Date: 10/01/2022

SECTION-I
NOTICE INVITING TENDER (NIT)

Notice Inviting Tender (NIT)

FOR

Design, Engineering, Supply, Construction, Erection, Testing & Commissioning and Comprehensive O&M of cumulative 5 MW (AC) Ground Mounted Solar PV Power Plant at village Bhilkheda Taluka Karanja Lad, District Washim (Interchange no. 8) at Chainage 182.400 km along Hindu Hrudaysamrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg. Total Project Capacity of 5 MW (AC) is divided into 2 different grid interconnections i.e. 2 MW solar project is to be connected to Belmandal 33/11kV substation which is at 6.5 km and 3 MW solar project is to be connected to Kakadshivni 33/11 kV Substation which is at 1.5 km from I/c no. 8.

Eligibility conditions set forth in the RFP document are as per 5 MW (AC) cumulative capacity basis only. Bidders are required to quote accordingly for the complete cumulative capacity of 5 MW (AC). The total capacity of 5 MW will be awarded to a single successful bidder.

The total price of EPC and O&M arrived, will be converted to the per MW price. Based on the per MW price arrived, the per site project EPC and O&M price will be calculated by multiplying the per MW price with the respective site capacity. In the same way, the respective site O&M price will be calculated. Accordingly, the EPC and O&M, Contracts will be executed by the Authority with the single successful bidder.

EMD shall be submitted by the bidders jointly for the complete 5 MW project capacity. MREL reserves the option to reduce any of the above-mentioned site capacity from the overall cumulative capacity before/after award of the Contract.

INSTRUCTIONS TO BIDDER FOR E-TENDERING

TENDERING PROCEDURE: -

1.1 Blank Tender Forms.

Tender document can be seen, downloaded from the e-Tendering Portal <https://mahatenders.gov.in>

- 1.1.1. The tender must be prepared & submitted online on e-Tendering Portal <https://mahatenders.gov.in> by the bidder, based on the clarification, additional facility offered (if any) by the Authority, and this tender shall be unconditional. Conditional tenders shall be summarily REJECTED. For further information related to how to participate in e-Tendering, please read “1.2: Guidelines to Bidders on the operations of Electronic Tendering System of Maharashtra State Road Development Corporation” carefully.
- 1.1.2. All bidders are cautioned that tenders containing any deviation from the EPC Contractual terms and conditions, specifications or other requirements and conditional tenders will be treated as non-responsive. The bidders should clearly mention in forwarding letter that its offer (in envelope No. 1 & 2) does not contain any conditions, deviations from terms and conditions stipulated in the tender document.
- 1.1.3. For any assistance, clarification related to the tender, please contact Director, MREL, Bandra, Mumbai. E-mail: - eamsrdc@gmail.com
- 1.1.4. For any assistance on the use of Electronic Tendering System, the Users may call the below numbers:

Landline No. – 0120 - 4200462, 0120 - 4001002, 0120 – 6277787.

E-mail: support-eproc@nic.in

- 1.2 Guidelines to Bidders on the operations of Electronic Tendering System are available on <https://mahatenders.gov.in>
- A. **Pre-requisites to participate in the Electronic Tenders processed by MREL/MSRDC:**
1. **Enrolment and Empanelment of contractors /consultants on Electronic Tendering System:**



The Bidders interested in participating in the Tenders of MREL/MSRDC using the Electronic Tendering System shall be required to enroll on the Electronic Tendering System to create User ID and password.

After submission of application for enrolment on the System, the application information shall be verified by the Authorized Representative of the Service Provider. If the information is found to be complete, the enrolment submitted by the Vendor shall be approved.

The Bidder may obtain the necessary information on the process of enrolment and empanelment either from Helpdesk Support Team or may visit the information published under the link Enroll under the section E-Tendering Bidders Manual Kit for Bidders on the Home Page of the Electronic Tendering System.

2. Obtaining a Digital Certificate:

The Bid Data that is prepared online is required to be encrypted and the Bid Data is required to be signed electronically using a Digital Certificate (Class – II or Class – III). This is required to maintain the security of the Bid Data and also to establish the identity of the Contractor / Consultants transacting on the System.

The Digital Certificates are issued by an approved Certifying agency, authorized by the Controller of Certifying Authorities of Government of India through their Authorized Representatives upon receipt of documents required to obtain a Digital Certificate. Bid data / information for a particular Tender may be submitted only using the Digital Certificate encryption which is used to encrypt the data / information and signing which is used to sign the data / information at submission stage. In case during the process of preparing and submitting a Bid for a particular Tender, the Contractor/Consultants loses his/her Digital Signature Certificate (i.e. due to virus attack, hardware problem, operating system problem); he / she may not be able to submit the Bid online. Hence, the Users are advised to store his / her Digital Certificate securely and if possible, keep a backup at safe place under adequate security to be used in case of need.

In case of online tendering, if the Digital Certificate issued to an Authorised User of a Partnership Firm is used for signing and submitting a bid, it will be considered equivalent to a no objection certificate / power of attorney to that User to submit the bid on behalf of the Partnership Firm. The Partnership Firm has to authorize a specific individual via an authorization certificate signed by a partner of the firm (and in case the applicant is a partner, another partner in the same form is required to authorise) to use the digital certificate as per Information Technology Act, 2000.

Unless the Digital Certificate is revoked, it will be assumed to represent adequate Authority of the Authority User to bid on behalf of the Firm for the Tenders processed on the Electronic Tender Management System of Government of Maharashtra as per Information Technology Act, 2000. The Digital Signature of this Authorized User will be

binding on the Firm. It shall be the responsibility of Partners of the Firm to inform the Certifying MREL/MSRDC or Sub Certifying MREL/MSRDC, if the Authorized User changes, and apply for a fresh Digital Signature Certificate. The procedure for application of a Digital Signature Certificate will remain the same for the new Authorised User.

The same procedure holds true for the Authorized Users in a Private / Public Limited Company. In this case, the Authorisation Certificate will have to be signed by the Director of the Company or the Reporting MREL/MSRDC of the Applicant. For information on the process of application for obtaining Digital Certificate, the bidders may visit the section Digital Certificate on the Home Page of the Electronic Tendering System.

3. Recommended Hardware and Internet Connectivity:

To operate on the Electronic Tendering System, the Bidders are recommended to use Computer System with at least 1 GB of RAM and broadband connectivity with minimum 512 kbps bandwidth.

4. Set up of Computer System for executing the operations on the Electronic Tendering System:

To operate on the Electronic Tendering System of Government of Maharashtra, the Computer System of a Bidder is required to be set up. The Bidders are required to install JRE 7 and above version and DSC Drivers.

B. Steps to be followed by Bidders to participate in the e-Tenders processed by MREL/MSRDC

1. Preparation of online Briefcase:

All Bidders enrolled on the Electronic Tendering System of Government of Maharashtra are provided with dedicated briefcase facility to store documents / files in digital format. The Bidders can use the online briefcase to store their scanned copies of frequently used documents / files to be submitted as a part of their bid response. The Bidders are advised to store the relevant documents in the briefcase before starting the Bid Submission stage.

In case, the Bidders have multiple documents under the same type (e.g. multiple Work Completion Certificates) as mentioned above, the Bidders are advised either to create a single PDF file of all the documents of same type or to compress the documents in a single compressed file in .rar formats and upload the same.

It is mandatory to upload the documents using the briefcase facility. Therefore, the Bidders are advised to keep the documents ready in the briefcase to ensure timely bid preparation.

Note: Uploading of documents in the briefcase does not mean that the documents are available to **MREL** at the time of Tender Opening stage unless the documents are specifically attached to the bid during the online Bid Submission stage.

2. Online viewing of Detailed Notice Inviting Tenders:

The Bidders can view the Detailed Tender Notice along with the Time Schedule (Key Dates) for all the Live Tenders released by **MREL/MSRDC** on the home page of **MREL/MSRDC** e-Tendering Portal on <https://mahatenders.gov.in> under the section Recent Online Tender.

3. Download of RFP Document:

The RFP Document is available on <https://mahatenders.gov.in> for free downloading.

4. Online Bid Preparation and Submission of Bid Hash (Seal) of Bids:

Submission of Bids will be preceded by online bid preparation and submission of the digitally signed Bid (Seals) within the Tender Time Schedule (Key Dates) published in the Detailed Notice Inviting Tender and Corrigenda / Addenda, if any. The Bid Data is to be prepared in the formats along with necessary fees through online payment gateway as stipulated in the RFP document, provided by the **Authority**.

In the uploadable document type of formats, the Bidders are required to select the relevant .rar document already uploaded in the briefcase. Bidders are required to quote their rates in Online Form given (if any- for RFP stage) in e-Tender. If Rates are quoted anywhere else other than online form entire bid is liable for Rejection.

NOTE: -

- a. The Bidder shall upload a single .rar folder document against each unuploadable option.
- b. The Bidder should fill up online form with appropriate data & encrypt the same using public key of Bidder's DSC to save.

In case, Bidder wish to update or modify data filled in Online Form, Bidders are required to decrypt the data using Private Key of Bidder's DSC. After decryption, e-Tendering system shall allow bidder to update or modify data filled in an online form. It is must for Bidder to Encrypt & Save updated & modified data to update Online Form. If Bidder fails to save data in an online form after updating or modification, Sole responsibility will be on Bidder. In such instances, e-Tendering system will consider earlier saved data in an Online Form.

- c. The bid values are digitally signed using valid Class – II or Class – III Digital Certificate issued by any Certifying Authority. The Bidders are required to obtain Digital Certificate in advance.

5. Close for Bidding:

After the expiry of the cut – off time of Bid Submission stage to be completed by the Bidders has lapsed, the Tender will be closed by the e tendering system.

6. Short listing of Bidders for Financial Bidding Process:

The Tendering Authority of **MREL** will first open the Technical Bids of all Bidders and after scrutiny of the technical eligibility documents, the Bidders whose Technical Bids are responsive to eligibility and qualifications requirements as per this RFP will be shortlisted for financial bid opening. The shortlisted Bidders will be intimated by email.

7. Opening of the Financial Bids:

The bidders may remain present in the Office of the Tender Opening Authority at the time of opening of Financial Bids. However, the results of the Financial Bids of all bidders shall be available on the e-Tendering Portal immediately after the completion of financial bid opening process.

8. Tender Schedule (Key Dates):

The bidders are strictly advised to follow the Dates and Times allocated to each stage under the column “EPC Contract or Stage” as indicated in the Time Schedule in the Detailed Tender Notice for the Tender. All the online activities are time tracked and the Electronic Tendering System enforces time-locks that ensure that no activity or transaction can take place outside the Start and End Dates and Time of the stage as defined in the Tender Schedule. At the sole discretion of the Tendering Authority of **MREL**, the time schedule of the Tender stages may be extended /changed.

(SINGLE STAGE TWO ENVELOPE BIDDING)

Under e-Tendering

1. Maharashtra State Road Development Corporation Ltd (MSRDC), Mumbai, a Government of Maharashtra undertaking (MSRDC) is a Corporation established and fully owned by the Government of Maharashtra through a resolution dated 9th July, 1996 and has been incorporated as limited company under company Act 1956 on 2nd August 1996 engaged in the development of Road infrastructure on State Highways, National Highways, Expressways, urban transport on Sea Link.
2. MSRDC through its Special Purpose Vehicle, Mahasamruddhi Renewable Energy Limited (hereinafter referred to as the MREL or the Authority), envisages the execution of Green Energy by way of implementing Solar PV Power Plant at interchanges of the Hindu Hrudaysamrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg (HHBTMSM). This would not only be a leap towards the use of Green Energy for MSRDC and the Authority but also be means of self-reliant and Economical Energy which would capitalize the abundance of Solar Energy.
3. The Authority intends to appoint competent and eligible Contractors for designing, engineering, procurement and construction of ground based Grid Connected Solar PV Power Plant at village Bhilkheda, Taluka Karanja Lad District Washim at Chainage 182.400 km (Interchange no. 8) along HHBTMSM on Engineering, Procurement & Construction (EPC) Mode and the total Project Capacity of 5 MW (AC) is divided into 2 different grid interconnections i.e. 2 MW solar project is to be connected to Belmandal 33/11kV substation which is at 6.5 km and 3 MW solar project is to be connected to Kakadshivni 33/11 kV Substation which is at 1.5 km from I/C 8 (hereinafter referred to as the Project”).
4. The selection of the Contractor for the Tender for Design, Engineering, Supply, Construction, Erection, Testing & Commissioning and Comprehensive O&M of 5 MW (AC) Ground Mounted Solar PV Power Plant along with 10 Years Plant O&M at the aforesaid Interchange no. 8 shall be entirely through Single Stage Two Envelop Bidding process.
5. A Single Stage Two Envelope Bidding Procedure will be adopted and will be processed as detailed in the Bidding Documents. Bidding will be conducted through the competitive bidding procedures as per the provisions of ITB/ BDS and the contract shall be executed as per the provisions of the RFP. It shall be noted that the respective rights of the Authority and the Bidder/ Contractor shall be governed by the Bidding Documents and Contract signed between the Authority and the Contractor for the project.

Eligibility and qualification of the Bidder will be first examined based on the details submitted under first part (Technical Bid) with respect to eligibility and qualifications criteria prescribed in this RFP (the “Bidder”, which expression shall, unless repugnant to the context, include the members of the Joint Venture).

The Financial Bid under the second part shall be opened of only those Bidders whose Technical Bids are responsive to eligibility and qualifications requirements as per this RFP.

6. The Bid shall be valid for a period of 120 days from the date specified in the table (Schedule of Bidding Process) for submission of BIDs.
7. Bidders are advised to examine the Project in greater detail, and to carry out, at their cost, such studies as may be required for submitting their respective BIDs for award of the contract including implementation of the Project.
8. Bidders should submit their bid proposal online complete in all aspect on or before last date and time of Bid Submission.
9. Bidder shall submit bids along with non-refundable Tender document Fee, Tender Processing Fees, interest free Earnest Money Deposit (EMD) complete in all respect as per the Bid Data Sheet. Techno-Commercial bids will be opened as per the Bid Data Sheet online in the presence of authorised representatives of bidders who wish to be present. Bid received without the prescribed Tender Processing Fees and Earnest Money Deposit (EMD) will be rejected. In the event of any date indicated is a declared Holiday, the next working day shall become operative for the respective purpose mentioned herein.
10. BIDs will be evaluated for the Project on the basis of the lowest cost quoted by a Bidder for implementing the Project (the "Contract Price"). The total time allowed for completion of construction under the Agreement (the "Construction Period") and the period during which the Contractor shall be liable for maintenance and rectification of any defect or deficiency in the Project after completion of the Construction Period (the "Defects Liability Period") shall be pre-determined, and are specified in the draft Agreement forming part of the Bidding Documents.

In this RFP, the term "Lowest Bidder" shall mean the Bidder who has quoted the lowest Contract price.

11. The Bidder selected shall be responsible for the performance of the following scope of work (more detailed in this RFP document):
 - i. Design, Engineering, Supply, Construction, Erection, Testing & Commissioning of 5 MW (AC) ground based Solar PV Power Plant at Village Bhilkheda Taluka Karanja Lad, District Washim along HHBTMSM".
 - ii. Comprehensive operation & maintenance of the Solar PV Power Plants as mentioned in detailed scope of work, after successful commissioning and performance demonstration, as detailed in technical specification, including supply and storage of all mandatory spare parts, consumables, repairs/ replacement of any defective equipment, etc. The total contract period is 10 years.

The above scope of work is indicative, and the detailed scope of work is given in the Scope of Work and Technical Specification (Section - V) of this RFP Document.

12. EMD shall be paid online through SBI payment gateway provided on the e-tendering portal <https://mahatenders.gov.in>
13. Performance Securities as per this RFP document shall be furnished by the successful bidder after issuance of Letter of Acceptance (LOA) by the Authority.
14. Any queries or request for additional information concerning this RFP shall be submitted by e-mail to the officer designated in the Excel only as per below format with the subject capturing the name of the RFP.

Sr. No.	RFP Volume, Section	Original Content in the RFP	Clarification sought

15. MREL reserves the right to cancel/ withdraw this RFP without assigning any reason and shall bear no liability whatsoever consequent upon such a decision.

SCHEDULE OF BIDDING PROCESS

The Authority shall endeavor to adhere to the following schedule:

Sr. No.	Event Description	Date
1	Notice Inviting Tenders	10/01/2022
2	Last date for receiving queries	21/01/2022 till 1100 Hrs IST
3	Pre-BID meeting and venue	24/01/2022 at 1200 Hrs IST
4	Last date of download of Request for Proposal Document	10/02/2022 till 1500 Hrs IST
5	BID Due Date (online submission)	10/02/2022 till 1500 Hrs IST
6	Physical Submission of Technical Bid	11/02/2022 till 1200 Hrs IST
7	Opening of Technical BIDs at venue	11/02/2022 at 1530 Hrs IST
8	Declaration of eligible / qualified Bidders	To be notified
9	Opening of Financial BID	To be notified
10	Letter of Acceptance (LOA)	To be notified
11	Return of signed duplicate copy of LOA	Within 7 days from the LOA
12	Validity of BID	120 days from Bid Due Date
13	Signing of Agreement	Within 10 days from LOA
14	Submission of Performance Security (PS)	Within 10 days from LOA

PRE-BID CONFERENCE

1. Pre-bid conference shall be convened at the designated date, time and place. A maximum of two representatives of prospective Bidders shall be allowed to participate on production of authority letter from the Bidder. In case of online pre-bid meeting, the details will be provided 2 days prior to date of pre-bid meeting on the official e-tendering portal.
2. The Bidders shall submit their queries on or before 21/01/2022 till 11 am on via email on **eamsrdc@gmail.com**.
3. During the course of Pre-Bid conference, the Bidders will be free to seek clarifications and make suggestions for consideration of the Authority. The Authority shall endeavor to provide clarifications and such further information as it may, in its sole discretion, consider appropriate for facilitating a fair, transparent and competitive Bidding Process.



Section-II BID DATA SHEET

INTERPRETATIONS

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

BID DATA SHEET

Project Title	Design, Engineering, Supply, Construction, Erection, Testing & Commissioning and Comprehensive O&M of cumulative 5 MW (AC) Ground Mounted Solar PV Power Plant at village Bhilkheda Taluka Karanja Lad, District Washim (Interchange no. 8) at chainage 182.400 km along Hindu HrudaySamrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg
Tender issued by	Mahasamruddhi Renewable Energy Limited, Plot No. A/792, Near Lilawati Hospital, Opp. Bandra Reclamation Bus Depot, K.C. Marg, Bandra (West), Mumbai-400050, Maharashtra, India
Tender No. & Date	10/01/2022
Type of Tender	E-Tendering
Completion/Contract Period	As mentioned in Special Conditions of Contract (SCC).
Name of Work/ Brief Scope of Work/ Job	<p>Develop a 5 MW grid-connected Solar PV Power Project at village Bhilkheda, Taluka Karanja Lad, District Amravati at Chainage 182.400 km along HHBTMSM for MREL.</p> <p>The Solar EPC Contractor shall be responsible for the designing, engineering, procuring, supplying, taking insurance, packing and forwarding, loading, transporting, unloading, safekeeping of Equipment, constructing, installing, erecting, testing, commissioning and achieving the Scheduled Commercial Operation Date (SCOD) of the SPP with 10 (Ten) years comprehensive operation and maintenance (O&M) from the date of commissioning or Operational Acceptance, whichever is later.</p> <p>(Refer Section VI, Scope of Work & Technical Specification for detailed description)</p>
Land Development & Transmission Line	The EPC Contractor shall be responsible for land development as per the project requirement and laying off the transmission lines connecting from the Solar PV Power Project (SPP) to the nearest MSEDCL/MSETCL substation at the Delivery Point along with the associated transmission infrastructure for confirming the evacuation of power by the Scheduled Commercial Operation Date (SCOD), and all clearances related thereto. Total Project Capacity of 5 MW (AC) shall be divided into 2 different grid interconnections i.e. 2 MW solar projects is to be connected to Belmandal 33/11kV substation which is at 6.5 km and 3 MW solar project is to be connected to Kakadshivni 33/11 kV Substation which is at 1.5 km from Interchange no. 8.
Project Location	Village Bhilkheda, Taluka Karanja Lad, District Washim at km 182.400 along the HHBTMSM, within Maharashtra

Tender Document Fee	Amount: INR 25,000/- (Indian Rupees Twenty-Five Thousand only) + GST @ 18%
Tender Processing Fee	Amount Rs. 2,00,000 (Indian rupees Two Lakh only) + GST @18%
Earnest Money Deposit (EMD)	Amount: INR 2,00,000/- (Indian Rupees Two Lakh Only) to be paid online through SBI payment gateway provided on e-tendering portal https://mahatenders.gov.in
Period of Bid Validity	120 days from the bid due date
Date, Time & Venue of Pre-Bid Meeting	24/01/2022 at 12 noon at MREL, Plot No. A/792, Near Lilawati Hospital, Opp. Bandra Reclamation Bus Depot, K.C. Marg, Bandra (West), Mumbai-400050, Maharashtra,
Site Visit	Prospective Bidders are advised to visit the site to study the actual conditions and go through the plans/ drawings connected to the present scope of work etc. including power evacuation system and get acquainted with the same before attending Pre-bid meeting.
Bid Due Date	10/02/2022 till 1500 Hrs IST
Physical submission of technical bid	11/02/2022 till 1200 Hrs IST
Technical Bid Opening	11/02/2022 at 1530 Hrs IST
Financial Bid Opening	To be intimated subsequent to the short listing of Techno Commercial Bids
General Eligibility Criteria	<ol style="list-style-type: none"> 1. The Bidder must be a company incorporated in India under The Companies Act, 1956/ 2013, as applicable. 2. The Bidder must not be debarred/ blacklisted/defaulted by any Government, agency, Public Sector Undertaking (PSU), institution/ autonomous organizations in the past and such bar/ban shall not be operational on the bid due date. 3. The Bidder must submit a copy of the declaration for the "Compliance with the MNRE technical standards" for the Equipment. 4. The Bidder must have established high quality, environment management system, and information security standards in place and must have ISO 9001, ISO 14001 and ISO 27001 certifications for the solar photovoltaic modules and inverters.
Technical Eligibility Criteria	As mentioned in Special Conditions of Contract (SCC).
Financial Eligibility Criteria	As mentioned in Special Conditions of Contract (SCC).
Consortium Allowed/ Not Allowed	Joint venture and consortium are not allowed.
Warranty / Guarantee requirement	<ol style="list-style-type: none"> 1. PV modules used in grid connected solar power plants must be warranted for peak output wattage, which should not be less than 90% at the end of 10 years and 80% at the end of 25

	<p>years.</p> <ol style="list-style-type: none"> 2. The modules shall be warranted for at least 10 years for failures due to material defects and workmanship. 3. The mechanical structures, electrical works and overall workmanship of the grid solar power plants must be warranted for a minimum of 5 years 4. The Inverters/PCUs installed in the solar power plant must have warranty for 5years.
Timelines for Scope of Work	As mentioned in Section-V, Scope of Work & Technical Specifications
Contract Performance Security	As mentioned in Special Conditions of Contract (SCC).
Insurance	<p>During the Contract period i.e., during Construction & O&M period, all insurance related expenses shall be borne by the Contractor. The goods supplied under the Contract shall be fully insured against the loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in such a manner that Authority shall not incur any financial loss, as long as the plant continues to remain under the custody of the Contractor. During O&M period also (after the Construction period is over), the liability to bear the cost of insurances shall be of the Contractor.</p> <p>In case of any loss or damage or pilferage or theft or fire accident or combination of the said incidents etc. under the coverage of insurance, the Contractor shall lodge the claim as per rules of insurance.</p> <p>All other insurance like In – transit insurance (Marine/ Cargo/ others as applicable), Construction All Risk, Erection All Risk, workmen compensation, fire, third party liability, insurance against theft, Contractor’s Equipment, machinery breakdown policy & its vehicles and others as required for the Construction and O&M of the Plant and to indemnify the Authority and all such costs i.e. equipment, material, resources, insurances etc shall be borne by the Contractor.</p>
Terms of Payment	As mentioned in Special Conditions of Contract (SCC).
Bid Currencies	Bidders must submit bid in Indian Rupees (INR) only.
Language of Bid	The bid prepared by the bidder and all correspondence/ drawings and documents relating to the bid exchanged between the bidder and Authority shall be written in English language alone.
Technical Queries Contact Details	Chief General Manager (Environment). Email id- eamsrdc@gmail.com

Section-III

INSTRUCTIONS TO BIDDERS (ITB)

A. General

- 1. Scope of Bid**
 - 1.1 In connection with the Notice inviting Tender (NIT), the Authority, as indicated in the Bid Data Sheet (BDS), issues this Bidding Document for the procurement of plant and services as specified in bidding document.
 - 1.2 The successful bidder will be expected to complete the entire scope of work within the period stated in Section - IV, Special Conditions of Contract.
 - 1.3 Throughout this Bidding Document,
 - (a) the term “in writing” means communicated in written form and delivered against receipt;
 - (b) except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and
 - (c) “day” means calendar day.
- 2. Eligible Bidders**
 - 2.1 The Bidder shall not be under a declaration of ineligibility by Employer for Corrupt/ Fraudulent/ Collusive/ Coercive practices, as defined in "Instructions to Bidders [ITB], Clause no. 49" (Action in case Corrupt/ Fraudulent/ Collusive/ Coercive Practices).
 - 2.2 The Bidder shall not have been debarred by Authority/ Ministry of New & Renewable Energy (MNRE) or any other ministries and / or any other Government Department, Agencies or PSUs from future bidding due to “poor performance” or “corrupt and fraudulent practices” or any other reason in the past and such bar/ban shall not be operational on the bid due date.
 - 2.3 The Bidder shall not be under any liquidation, court receivership or similar proceedings on Bid due date. It shall be the sole responsibility of the bidder to inform Authority in case the bidder is under any liquidation, court receivership or similar proceedings on Bid due date and during the course of finalization of the tender.
 - 2.4 In case there is any change in status of the declaration prior to award of contract, the same has to be promptly informed to the Authority by the bidder.
 - 2.5 Pursuant to qualification criteria set forth in the bidding document, the Bidder shall furnish all necessary supporting documentary evidence to establish Bidder’s claim of meeting

the eligibility and qualification criteria as mentioned in the RfP.

3. **Bids From Consortium/ Joint Venture** Consortium/ Joint Venture is not allowed
4. **Number of Bids Per Bidder** A Bidder shall submit only 'one [01] Bid'. A Bidder who submits or participates in more than 'one [01] Bid' will cause all its proposals to be disqualified.
5. **Cost of Bidding & Tender Processing Fee**
 - 5.1 **Cost of Bidding**
The Bidder shall bear all costs associated with the preparation, finalization and submission of the Bid including but not limited to Bank charges, all courier charges including taxes & duties, site visits, etc. incurred thereon. Further, Authority will in no case, be responsible or liable for these costs, regardless of the outcome of the bidding process.
 - 5.2 **Tender Processing Fee (Non-Refundable)**
A non- refundable Tender Processing Fee, of Rs. 2,00,000/- + GST @18% shall be paid online through SBI payment gateway provided on e-tendering portal. The Tender Processing Fee is to be submitted along with the bid for the amount as mentioned in the Bid Information Sheet attached under Section - I (Notice Inviting Tender).
 - 5.3 The tender processing fee is non-refundable and no request for refund on whatsoever ground will be entertained by the Authority.
6. **Site Visit**
 - 6.1 The Bidder is advised to visit and examine the site of works and its surroundings and obtain for itself on its own responsibility and cost all information that may be necessary for preparing the Bid and entering into a Contract for execution of work as per the Scope of Work. The costs of visiting the site shall be solely borne by the Bidder.
 - 6.2 The Bidder or any of its personnel or agents shall be granted permission by the Authority to enter upon its premises and land/Area for the purpose of such visits, but only upon the express conditions that the Bidder, its personnel and agents will release and indemnify the Authority and its personnel, agents from and against all liabilities in respect thereof, and that the bidder will be responsible for death or injury, loss or damage to property, and any other loss, damage, costs, and

expenses incurred as a result of inspection.

- 6.3 The Bidder shall not be entitled to hold any claim against Authority for lack of any kind of pre-requisite information as it is the sole responsibility of the Bidder to obtain all the necessary information with regard to site, surrounding, working conditions, weather etc. on its own before submission of the bid.

B. Contents of Bidding Document

- 7. Contents of RFP Documents**
- 7.1 The Bidding (RFP) Document consists of all the sections indicated below, and should be read in conjunction with any addenda issued in accordance with the ITB.
 Section I – Notice inviting Tender (NIT)
 Section II - Bid Data Sheet (BDS)
 Section III – Instruction to Bidders (ITB)
 Section IV - Special Conditions of Contract (SCC)
 Section V – Scope of Work and Technical Specifications
 Section VI – Evaluation of Price Bid
 Section VII – Sample forms and formats
- 7.2 The NIT issued by the Authority is not part of the Bidding Document.
- 7.3 The Authority is not responsible for the completeness of the Bidding Document and its addenda, if they were not obtained directly from the source stated by the Authority in the NIT.
- 7.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Document. Failure to furnish all information or documentation required by the Bidding Document may result in the rejection of the Bid.
- 8. Clarification of Bidding Document, Site Visit, Pre-Bid Meeting**
- 8.1 A prospective Bidder requiring any clarification on the Bidding Document shall contact the Authority in writing at the Authority's address indicated in the BDS, or raise inquiries during the pre-bid meeting if provided for in accordance with ITB 8.3. The Authority will respond to any request for clarification, provided that such request is received no later than 2 days prior to the pre-bid meeting. The Authority's response shall be in writing, including a description of the inquiry but without identifying its source. Should the Authority deem it necessary to amend the Bidding Document as a result of a request for clarification, it shall do so following the procedure under ITB 9 and ITB 24.2.

- 8.2 The Bidder is advised to visit and examine the site where the plant is to be installed and its surroundings and obtain for itself on its own responsibility and cost all information that may be necessary for preparing the Bid and entering into a contract for the provision of plant and services. The costs of visiting the site shall be at the Bidder's own expense.
- 8.3 The Bidder's designated representative is invited to attend a pre-bid meeting, if provided for in the BDS. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
- 8.4 The Bidder is requested to submit any questions in writing, to reach the Authority not later than 2 days before the pre-bid meeting.
- 8.5 Minutes of the pre-bid meeting, including the text of the questions raised, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all the Bidders. Any modification to the Bidding Document that may become necessary as a result of the pre-bid meeting shall be made by the Authority exclusively through the issue of an addendum/corrigendum/CSD etc. pursuant to ITB 9.

9. Amendment to Bidding Document

- 9.1 At any time prior to the deadline for submission of Bids, the Authority may amend the Bidding Document by issuing addenda.
- 9.2 Any addendum issued shall be part of the Bidding Document.
- 9.3 To give prospective Bidders reasonable time to take an addendum into account in preparing their Bids, the Authority may, at its discretion, extend the deadline for the submission of Bids (Bid Due Date), pursuant to ITB 24.2

C. Preparation of Bids

10. Language of Bid

- 10.1 The Bid, as well as all correspondence and documents relating to the bid, exchanged between the Bidder and the Authority, shall be written in the English language only. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages into the language specified in the BDS, in which

case, for purposes of interpretation of the Bid, such translation shall govern.

**11. Documents
Comprising the
Bid**

11.1 The Bid shall comprise two envelopes submitted simultaneously, one containing the Technical Bid including the signed Declaration and Undertaking and the other the Price Bid.

11.2 The Technical Bid submitted by the Bidder shall comprise the following:

- (a) Letter of Technical Bid;
- (b) Proof of online payment of EMD;
- (c) Power of Attorney authorizing the signatory of the Bid to sign the bid on behalf of the Bidder as per format provided in Section VII;
- (d) Proof of online payment towards the cost of Bid document and processing fee.
- (e) Documentary evidence in accordance with ITB 14.1, that the plant and services offered by the Bidder in its Bid, are eligible;
- (f) Documentary evidence in accordance with ITB 15, the Bidder's eligibility and qualifications to perform the contract if its Bid is accepted;
- (g) Technical Proposal in accordance with ITB 17.
- (h) Copy of Memorandum and Articles of Association, if the Bidder is a body corporate, and if a partnership then a copy of its partnership deed.
- (i) Copies of duly audited complete annual accounts of the Bidder for preceding 5 years;
- (j) Documentary evidence in accordance with ITB 16, that the plant and services offered by the Bidder conform to the requirement prescribed under the Bidding Document;
- (k) List of subcontractors, in accordance with ITB 17.2; and
- (l) any other document required in the BDS.

11.3 The Price Bid shall be submitted online only through e-procurement portal <https://mahatenders.gov.in> on or before the Bid Due Date and shall comprise the following:

- (a) Letter of Price Bid;
- (b) completed schedules as required, including Price Schedules, in accordance with ITB 12 and ITB 18;
- (c) any other document required in the BDS.

**12. Letter of Bid
and Schedules**

12.1 The Letters of Technical Bid and Price Bid, and the Schedules, and all documents listed under ITB 11, shall be

prepared using the relevant forms furnished in Section VII (Contract Forms). The forms must be completed without any alterations to the text, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested and as required in the BDS.

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|--|---|
| 13. Alternative Bids | 13.1 Deleted. |
| 14. Documents Establishing the Eligibility of Plant and Services | 14.1 To establish the eligibility of the plant and services in accordance with the bid document, Bidders shall submit information requested in the corresponding information sheets included in Section VII (Contract Form) |
| 15. Documents Establishing the Eligibility and Qualifications of the Bidder | 15.1 To establish its eligibility and qualifications to perform the Contract in accordance with Section IV (SCC), the Bidder shall provide the information requested in the corresponding information sheets included in Section VII (Contract Form) |
| 16. Documents Establishing Conformity of the Plant and Services | <p>16.1 The documentary evidence of the conformity of the plant and services to the Bidding Document may be in the form of literature, drawings and data, and shall furnish:</p> <ul style="list-style-type: none"> (a) a detailed description of the essential technical and performance characteristics of the plant and services, including the functional guarantees of the proposed plant and services, in response to the Specification; (b) a list giving full particulars, including available sources, of all spare parts and special tools necessary for the proper and continuing functioning of the plant for the period named in the BDS, following completion of plant and services in accordance with provisions of the contract; and (c) a commentary on the Authority's Specifications and adequate evidence demonstrating the substantial responsiveness of the plant and services to those specifications. Bidders shall note that standards for workmanship, materials and equipment designated by the Authority in the Bidding Document are intended to be descriptive (establishing standards of quality and performance) only and not restrictive. The Bidder may |

substitute alternative standards, brand names and/or catalog numbers in its Bid, provided that it demonstrates to the Employer's satisfaction that the substitutions are substantially equivalent or superior to the standards designated in the Specifications.

17. Technical Proposal, Subcontractors

17.1 The Bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section VII (Contract Form), in sufficient detail to demonstrate the adequacy of the Bidders' proposal to meet the work requirements and the completion time.

17.2 For major items of plant and services, which the Bidder intends to purchase or subcontract, the Bidder shall give details of the name and nationality of the proposed Subcontractors, including Manufacturers, for each of those items. In addition, the Bidder shall include in its Bid information establishing compliance with the requirements specified by the Authority for these items. Bidders are free to list more than one Subcontractor against each item of the plant and services. Quoted rates and prices will be deemed to apply to whichever Subcontractor is appointed, and no adjustment of the rates and prices will be permitted.

17.3 The Bidder shall be responsible for ensuring that any Subcontractor proposed complies with the requirements of ITB 2 and that any plant, or services to be provided by the Subcontractor comply with the requirements of ITB 14 and ITB 15.1

18. Bid Prices and Discounts

18.1 Unless otherwise specified in the bid document, bidders shall quote for the entire plant and services on a "single responsibility" basis such that the total Bid price covers all the Contractor's obligations mentioned in or to be reasonably inferred from the Bidding Document in respect of the design, manufacture, including procurement and subcontracting (if any), delivery, construction, installation, and completion of the plant. This includes all requirements under the Contractor's responsibilities for testing, pre-commissioning and commissioning of the plant and, where so required by the Bidding Document, the acquisition of all permits, approvals, and licenses, etc.; the operation, maintenance, and training services and such other items and services as may be specified in the Bidding Document, all in accordance with the

requirements of the General Conditions. Items against which no price is entered by the Bidder will not be paid for by the Authority when executed and shall be deemed to be covered by the prices for other items.

18.2 Bidders are required to quote the price for the commercial, contractual and technical obligations outlined in the Bidding Document.

18.3 Bidders shall give a breakdown of the prices in the manner and detail called for in the Price Schedules. Where no different Price Schedules are included in the Bidding Document, Bidders shall present their prices in the following manner: Separate numbered Schedules included in Section VII (Contract Forms) shall be used for each of the following elements. The total amount from each Schedule (Nos. 1 to 4) shall be summarized in a Grand Summary (Schedule No. 5) giving the total bid price(s) to be entered in the Letter of Price Bid. Absence of the total bid price in the Letter of Price Bid may result in the rejection of the Bid.

Schedule No. 1:	Plant and Mandatory Spare Parts Supplied from Abroad
Schedule No. 2:	Plant and Mandatory Spare Parts Supplied from India
Schedule No. 3:	Design Services
Schedule No. 4:	Installation and Other Services
Schedule No. 5:	Grand Summary (Schedule Nos. 1 to 4)
Schedule No. 6:	Recommended Spare Parts

Bidders shall note that the plant and mandatory spare parts included in Schedule Nos. 1 and 2 above exclude materials used for civil, building, and other construction works. All such materials shall be included and priced under Schedule No. 4, Installation and Other Services.

18.4 The current edition of Inco terms, published by the International Chamber of Commerce shall govern.

18.5 The prices shall be fixed as specified in the BDS.

(a) The Fixed Price quoted by the Bidder shall be fixed during the Bidder's performance of the contract and not subject to variation on any account. A Bid submitted with an adjustable price quotation will be treated as nonresponsive and rejected.

18.6 Change in law shall refer to the occurrence of any of the following events after the last date of the bid submission, including:

1. the enactment of any new law; or
2. an amendment, modification or repeal of an existing law; or
3. the requirement to obtain a new consent, permit or license; or
4. any modification to the prevailing conditions prescribed for obtaining an consent, permit or license, not owing to any default of the bidder; or
5. any change in the rates of any Taxes, Duties and Cess which have a direct effect on the Project. except the imposition of basic custom duty

However, Change in Law shall not include any change in taxes on corporate income or any change in any withholding tax on income or dividends.

19. Currencies of Bid and Payment

19.1 The currency (ies) of the bid shall be, as specified in the BDS.

19.2 Bidders may be required by the Authority to justify, to the Authority's satisfaction, their local and foreign currency requirements.

20. Period of Validity of Bids

20.1 Bids shall remain valid for the period of 120 days from the bid Due date as specified in the BDS. A bid valid for a shorter period shall be rejected by the Authority as nonresponsive.

20.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Authority may request Bidders to extend the period of validity of their Bids, in which case the bidders must extend the bid validity without raising any objection/reservation. The request and the responses shall be made in writing. In case a bidder refuses to extend the bid validity as instructed, the EMD/bid security will be liable to be forfeited without any further reference to the bidder/s.

21. Earnest Money Deposit

21.1 The Bidder shall furnish as part of its Bid, EMD as specified in the BDS.

21.2 The EMD shall be paid online through SBI payment gateway provided on the e-tendering portal. The EMD shall not carry any interest. The Bid shall be summarily rejected if it is not

accompanied by the EMD.

- 21.3 Any Bid not accompanied by a substantially compliant EMD shall be rejected by the Authority as nonresponsive.
- 21.4 The EMD of the unsuccessful Bidder/s will be returned promptly upon the successful Bidder furnishing the performance security pursuant to ITB 47 provided there is no amount due and payable by the unsuccessful bidder/s to MSRDC and/or MREL in respect of any other contract with MSRDC or any of its subsidiary companies including MREL.
- 21.5 The EMD of successful Bidder shall be returned promptly once the successful Bidder has signed the Contract and furnished the required performance security.
- 21.6 The EMD may be forfeited:
- (a) if, notwithstanding ITB 26.3, a Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the Letter of Technical Bid and Price Bid, except as provided in ITB 20.2 or
 - (b) if the successful Bidder fails to:
 - (i) sign the Contract in accordance with ITB 46
 - (ii) furnish a performance security in accordance with ITB 47; or
 - (iii) accept the arithmetical corrections of its Bid in accordance with ITB 37.

22. Format and Signing of Bid

- 22.1 The Bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization in the form of Power of Attorney shall be attached to the technical Bid. The name and position held by each person signing the POA must be typed or printed below the signature. If a Bidder submits a deficient POA, the Bid shall be rejected summarily. If either the Letter of Technical Bid or Letter of Price Bid is not signed, the Bid shall be rejected summarily.
- 22.2 Any interlineations, erasures, or overwriting on the letters of technical bid or letter of price bid shall be allowed only if they are signed or initialed by the person signing the Bid.

D. Submission and Opening of Bids

23. Submission, Sealing, and

- 23.1 The Bidders shall submit their bids online on the e tendering portal <https://mahatenders.gov.in>. The procedure for

Marking of Bids

registration and submitting the bids online is available on the e portal.

23.2 The technical bids shall be submitted physically also at the date and time mentioned in the Bidding Schedule. The originals of documents submitted by the Bidders online shall be placed in an envelope which shall be sealed. The envelope shall clearly bear the identification **“TECHNICAL BID for Design, Engineering, Supply, Construction, Erection, Testing & Commissioning and Comprehensive O&M of cumulative 5 MW (AC) Ground Mounted Solar PV Power Plants along Hindu Hruday Samrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg”** and shall clearly indicate the name and address of the Bidder.

23.3 The envelope shall be addressed to the following officer and shall be submitted at the following address on or before 1100 hrs IST on 11/02/2022:

DESIGNATION: Director
ADDRESS: MREL, Bandra Reclamation, Bandra West, Mumbai- 400050
PHONE NO: 022-26517966
E-MAIL: eamsrdc@gmail.com

23.4 The envelope containing the Technical Bid shall bear a warning not to open before the time and date for the opening of Technical Bid, in accordance with ITB 27.1.

23.5 If envelope is not sealed and marked as required, the Authority will assume no responsibility for the misplacement or premature opening of the Bid.

23.6 BIDs submitted by fax, telex, telegram or e-mail shall not be entertained and shall be summarily rejected.

24. Bid Due Date

24.1 Technical & Financial BID comprising the documents listed at ITB 11 and 18 of the RFP shall be submitted online through e-procurement website <https://mahatenders.gov.in> on or before 1500 Hrs IST on 10/02/2022. Documents listed at ITB 11.2 of the RFP shall be physically submitted on or before 1200 Hrs IST on 11/02/2022.

24.2 The Authority may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Document in

accordance with ITB 8, in which case all rights and obligations of the Authority and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

25. Late Bids

E-procurement portal <https://mahatenders.gov.in> will not allow submission of any Bid after the prescribed date and time at BDS (Section II)

26. Procedure for e-tendering

26.1 Accessing/ Purchasing of BID document

26.1.1 It is mandatory for all the Bidders to have class-III Digital Signature Certificate (DSC) (in the name of Authorized Signatory / Firm or Organisation / Owner of the Firm or Organisation) from any of the licensed Certifying Agency (Bidders can see the list of licensed CAs from the link <https://mahatenders.gov.in>) to participate in e-tendering of MREL/MSRDC.

26.1.2 DSC should be in the name of the authorized signatory as authorized in FORM 7 to this RFP or person executing/delegating such Appendix III in favour of Authorized Signatory. It should be in corporate capacity (that is in Bidder capacity. The Bidder shall submit document in support of the class III DSC. In other cases, the bid shall be considered Non-responsive.

26.1.3 To participate in the bidding, it is mandatory for the Bidders to get registered their firm with e-procurement portal <https://mahatenders.gov.in> to have user ID & password which has to be obtained free of cost. Following may kindly be noted:

- (a) Registration with e-procurement portal should be valid at least up to the date of submission of BID.
- (b) BIDs can be submitted only during the validity of registration. It is also mandatory for the Bidders to get their firms registered with e-tendering portal. The Bidders shall update their project and other details on the portal on a regular basis and apply to the tenders via the portal.

26.1.4 The complete BID document can be viewed / downloaded by the Bidder from e-procurement portal <https://mahatenders.gov.in> from 10/01/2022 from 1500 Hrs IST (up to 10/02/2022 upto 1500 Hrs IST).

26.2 Preparation & Submission of BIDs:

- 26.2.1 Bidder may submit its Bid online following the instructions appearing on the screen. The detailed guidelines for e-procurement are also available on e-procurement portal. Similarly, a Bidder manual containing the detailed guidelines for registering, updating data and applying for bids is available on the <https://mahatenders.gov.in> portal.
- 26.2.2 The documents listed at Clause 11.2 shall be prepared and scanned in different files (in PDF or RAR format such that file size is not more than 30 MB) and uploaded during the on-line submission of BID on e-procurement portal.
- 26.2.3 The Technical & Financial Bid must be submitted online only through e-procurement portal <https://mahatenders.gov.in> using the digital signature of authorised representative of the Bidder on or before 10/02/2022 (up to 1500 Hrs IST).

26.3 Modifications/ Substitution/ withdrawal of BIDs

- 26.3.1 The Bidder may modify, substitute or withdraw its e- BID after submission but prior to the BID Due Date. No BID can be modified, substituted or withdrawn by the Bidder on or after the BID Due Date & Time.
- 26.3.2 For modification of e-BID, Bidder has to detach its old BID from e-procurement portal and upload / resubmit digitally signed modified BID. For withdrawal of BID, Bidder has to click on withdrawal icon at e-procurement portal and can withdraw its e-BID. Before withdrawal of a BID, it may specifically be noted that after withdrawal of a BID for any reason, Bidder cannot re-submit e-BID again. For modification of the application mode (sole / JV), Bidder has to switch the mode according to the guidelines provided in the aforementioned Bidder Manual available on the e-tendering portal. For withdrawal of bid, the Bidder can click on Delete Participation as mentioned in the guidelines in the Bidder Manual.

27. Online Opening

- Bid** 27.1 Opening of BIDs will be done through online process.
- 27.2 MREL/MSRDC may on-line open Technical BIDs on 11/02/2022 at 1530 Hrs IST, in the presence of the authorized representatives of the Bidders who choose to attend. MREL

will subsequently examine and evaluate the BIDs in accordance with the provisions of Section VI of RFP.

- 28. Rejection of Bids**
- 28.1 Notwithstanding anything contained in this RFP, the Authority reserves the right to reject any BID and to annul the Bidding Process and reject all BIDs at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons thereof. In the event that the Authority rejects or annuls all the BIDs, it may, in its discretion, invite all eligible Bidders to submit fresh BIDs hereunder.
- 28.2 The Authority reserves the right not to proceed with the Bidding Process at any time, without notice or liability, and to reject any BID without assigning any reasons.

E. Evaluation and Comparison of Bids

- 29. Confidentiality**
- 29.1 Information relating to the evaluation of Bids and recommendation of contract award, shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional advisor advising the Authority in relation to, or matters arising out of, or concerning the Bidding Process. The Authority will treat all information, submitted as part of the BID, in confidence and will require all those who have access to such material to treat the same in confidence. The Authority may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or the Authority or as may be required by law or in connection with any legal process.
- 29.2 Any attempt by a Bidder to influence the Authority in the evaluation of the Bids or Contract award decisions may result in the rejection of its Bid.
- 30 Clarification of Bids**
- 30.1 To assist in the examination, evaluation, and comparison of the Technical and Price Bids, and qualification of the Bidders, the Authority may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder that is not in response to a request by the Authority shall not be considered. The Authority's request for clarification and the response of Bidder/s shall be in writing. No change in the substance of the Technical Bid or prices in the Price Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors

discovered by the Employer in the evaluation of the Bids, in accordance with ITB 36.

30.2 If a Bidder does not provide clarifications of its Bid by the date and time set in the Authority's request for clarification, its Bid may be rejected.

31 Deviations, Reservations, and Omissions

31.1 During the evaluation of Bids, the following definitions apply:

- 31.1.1 "Deviation" is a departure from the requirements specified in the Bidding Document;
- 31.1.2 "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document; and
- 31.1.3 "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Document.

32 Evaluation of Technical Bids

32.1 The Authority may open the BIDs received online at 1530 Hrs IST on 11/02/2022, at the place specified in Schedule of bidding process; and in the presence of the Bidders who choose to attend.

32.2 The Employer shall examine the Technical Bid to confirm that all documents and technical documentation requested in ITB 11.2 have been provided, and to determine the completeness of each document submitted. If any of these documents or information is missing, the Bid may be rejected.

32.3 If any information furnished by the Bidder is found to be incomplete, or contained in formats other than those specified herein, the Authority may, in its sole discretion, exclude the relevant information for consideration of eligibility and qualification of the Bidder.

33 Responsiveness of Technical Bid

33.1 The Employer's determination of a bid's responsiveness is to be based on the contents of the Bid itself, as defined in ITB11.

33.2 A substantially responsive Technical Bid is one that meets the requirements of the Bidding Document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that,

33.2.1 if accepted, would:

- 33.2.1.1 affect in any substantial way the scope, quality, or performance of the plant and services specified in

- the Contract; or
- 33.2.1.2 limit in any substantial way, inconsistent with the Bidding Document, the Authority's rights or the Bidder's obligations under the proposed Contract;
- or
- 33.2.2 if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive Bids.
- 33.3 The Authority shall examine the technical aspects of the Bid submitted in accordance with ITB 17, Technical Proposal, in particular to confirm that all requirements of bidding document have been met without any material deviation, reservation, or omission.
- 33.4 If a Bid is not substantially responsive to the requirements of the Bidding Document, it shall be rejected by the Authority and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.
- 34 Nonmaterial Nonconformities**
- 34.1 Provided that a Bid is substantially responsive, the Authority may request that the Bidder submits the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the Bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the Price Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.
- 34.2 Provided that a Bid is substantially responsive, the Authority shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component.
- 35 Detailed Evaluation of Technical Bids**
- 35.1 The Authority will carry out a detailed technical evaluation of the Bids not previously rejected as being substantially nonresponsive, to determine whether the technical aspects are in compliance with the Bidding Document. The Bid that does not meet minimum acceptable standards of completeness, consistency, and detail, and the specified minimum and/or maximum requirements for specified functional guarantees, will be treated as nonresponsive and hence rejected. To reach such a determination, the Authority will examine and compare the technical aspects of the bids on the basis of the information supplied by the Bidders, taking into account the following:

- 35.1.1 overall completeness and compliance with the Authority's Requirements; deviations from the Authority's Requirements; conformity of the plant and services offered with specified performance criteria; suitability of the plant and services offered in relation to the environmental and climatic conditions prevailing at the site; and quality, function and operation of any process control concept included in the Bid. The Bid that does not meet minimum acceptable standards of completeness, consistency, and detail will be rejected for non-responsiveness;
- 35.1.2 type, quantity, and long-term availability of mandatory and recommended spare parts and maintenance services; and
- 35.1.3 other relevant factors, if any

36 Evaluation of Eligibility and Qualification of the Bidder

- 36.1 The Employer shall determine to its satisfaction during the evaluation of Technical Bids whether a Bidder meets the eligibility and qualifying criteria prescribed in Section IV and ITB 15 of this RFP
- 36.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB 15. The Authority shall not take into consideration the qualifications of other firms such as the Bidder's subsidiaries, parent entities, affiliates, subcontractors (other than Specialist Subcontractors if permitted in the bidding document), or any other firm(s) different from the Bidder.
- 36.3 An affirmative determination shall be a prerequisite for the opening and evaluation of a Bidder's Price Bid. The Authority reserves the right to reject the bid of any bidder found to be ineligible. A negative determination shall result into the disqualification of the Bid, in which event the Authority shall not open the Price Bid to the Bidder.
- 36.4 The capabilities of the manufacturers and subcontractors proposed in its Bid for the major items of plant and services to be used by a Bidder will also be evaluated for acceptability in accordance with Qualification Criteria. Their participation should be confirmed with a letter of intent between the parties, as needed. Should a manufacturer or subcontractor be determined to be unacceptable, the Bid will not be rejected, but the Bidder will be required to propose, without changing its bid price, an acceptable substitute manufacturer or

subcontractor meeting the minimum technical specifications stated in Section V. If a Bidder does not provide an acceptable substitute manufacturer or subcontractor by the date and time set in the Authority's request for substitution of manufacturer or subcontractor, its Bid may be rejected.

36.5 Prior to signing the Contract, the corresponding Appendix to the Contract Agreement shall be completed, listing the approved manufacturers or subcontractors for each item concerned.

**37 Correction of
Arithmetical
Errors**

37.1 During the evaluation of Price Bids, the Employer shall correct arithmetical errors on the following basis:

37.1.1 where there are errors between the total of the amounts given under the column for the price breakdown and the amount given under the Total Price, the amounts given under the column for the price breakdown shall prevail and the Total Price will be corrected accordingly;

37.1.2 where there are errors between the total of the amounts of Schedule Nos. 1 to 4 and the amount given in Schedule No. 5 (Grand Summary), the total of the amounts of Schedule Nos. 1 to 4 shall prevail and the Schedule No. 5 (Grand Summary) will be corrected accordingly;

37.1.3 if there is a discrepancy between the grand total price given in Schedule No. 5 (Grand Summary) and the bid amount in item (c) of the Letter of Price Bid, the grand total price given in Schedule No. 5 (Grand Summary) will prevail and the bid amount in item (c) of the Letter of Price Bid will be corrected; and

37.1.4 if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetical error, in which case the amount in figures shall prevail subject to (a), (b), and (c) above.

37.2 If the Bidder that submitted the lowest evaluated Bid does not accept the correction of errors, its Bid shall be rejected and its EMD shall stand forfeited without further reference to the bidder.

**38 Conversion to
Single
Currency**

38.1 For evaluation and comparison purposes, the currency (ies) of the Bid shall be converted into a single currency as specified in the BDS.

39 Domestic Preference

39.1 Domestic preference shall not apply.

40 Evaluation and Comparison of Price Bids

40.1 The Authority shall use the criteria and methodologies listed in this clause. No other evaluation criteria or methodologies shall be permitted.

40.2 To evaluate a Price Bid, the Authority shall consider the following:

40.2.1 the bid price, excluding provisional sums and the provision, if any, for contingencies in the Price Schedules;

40.2.2 price adjustment for correction of arithmetical errors in accordance with ITB 37.1;

40.2.3 price adjustment due to discounts offered in accordance with ITB 18;

40.2.4 price adjustment due to quantifiable nonmaterial nonconformities in accordance with ITB 33.3;

40.2.5 converting the amount resulting from applying (40.2.1) to (40.2.4) above, if relevant, to a single currency in accordance with ITB 37;

40.2.6 assessment whether the bid is abnormally low in accordance with ITB 40; and

40.3 The Authority's evaluation of a Bid will exclude and not take into account,

40.3.1 in the case of Plant and Mandatory Spare Parts (Schedule No. 1) supplied from abroad, all taxes and duties, applicable in the Authority's country and payable on the Plant and Mandatory Spare Parts if the Contract is awarded to the Bidder; and

40.3.2 in the case of Plant and Mandatory Spare Parts (Schedule No. 2) supplied from within the Authority's country, sales and other taxes, applicable in the Employer's country and payable on the Plant and Mandatory Spare Parts if the Contract is awarded to the Bidder.

40.4 If price adjustment is allowed in accordance with ITB 18.6, the

estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.

40.5 If the Bid, which results in the lowest Evaluated Bid Price, is seriously unbalanced or front loaded in the opinion of the Authority, the Authority may require the Bidder to produce detailed price analyses for any or all items of the Price Schedules, to demonstrate the internal consistency of those prices with the methods and time schedule proposed. After evaluation of the price analyses, taking into consideration the terms of payments, the Authority may require that the amount of the performance security be increased at the expense of the Bidder to a level sufficient to protect the Authority against financial loss in the event of default of the successful Bidder under the Contract.

40.6 The Authority shall compare all substantially responsive Bids to determine the lowest evaluated Bid, in accordance with ITB 40.

41 Abnormally Low Bids

41.1 An abnormally low bid is one where the bid price, in combination with other elements of the bid, appears to be so low that it raises concerns as to the capability of the Bidder to perform/execute the contract for the offered bid price.

41.2 When the offered bid price appears to be abnormally low, the Authority shall undertake a three-step review process as follows:

41.2.1 identify abnormally low costs and unit rates by comparing them with the Authority's estimates, other substantially responsive bids, or recently awarded similar contracts;

41.2.2 clarify and analyze the bidder's resource inputs and pricing, including overheads, contingencies and profit margins; and

41.2.3 decide whether to accept or reject the bid.

41.3 With regard to ITB 41.2.2 above, the Authority will seek a written explanation from the bidder of the reasons for the offered bid price, including a detailed analysis of costs and unit prices, by reference to the scope, proposed methodology, schedule, and allocation of risks and responsibilities. This may also include information regarding the economy of the manufacturing process; the services to be provided, or the construction method to be used; the technical solutions to be adopted; and any

exceptionally favorable conditions available to the bidder for the works, equipment or services proposed.

41.4 After examining the explanation given and the detailed price analyses presented by the bidder, the Authority may:

41.4.1 accept the bid, if the evidence provided satisfactorily accounts for the low bid price and costs, in which case the bid is not considered abnormally low;

41.4.2 accept the bid but require that the amount of the performance security be increased at the expense of the bidder to a level sufficient to protect the Authority against financial loss. The amount of the performance security shall generally be not more than 20% of the contract price; or

41.4.3 reject the bid if the evidence provided does not satisfactorily account for the low bid price and make a similar determination for the next ranked bid, if required.

42 Employer's Right to Accept Any Bid, and to Reject Any or All Bids

42.1 The Authority reserves the right to accept or reject any Bid, and to annul the bidding process and reject all Bids at any time prior to award of contract, without thereby incurring any liability to Bidders. In case of annulment, all Bids submitted and specifically, bid securities, shall be promptly returned to the Bidders subject to adjustment, if any.

43 Notice of Intention of Award of Contract

Deleted

F. Award of Contract

44 Award Criteria

44.1 The Authority shall award the Contract to the Bidder whose offer has been determined successful in line with ITB 35 to ITB 41 above to be the lowest evaluated Bid and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be eligible and qualified to perform the Contract satisfactorily.

45 Notification of Award

45.1 Prior to the expiration of the period of bid validity the Authority shall transmit the Notification of Award (using the form included in Section VII (Contract Forms)) to the successful Bidder, in writing, that its Bid has been accepted.

46 Signing of

46.1 Promptly after notification, the Authority shall send the successful

Contract Bidder the Contract Agreement.

46.2 Within 10 days of receipt of the Contract Agreement, the successful Bidder and the authorized representative of the Authority shall execute the same.

47 Performance Security

47.1 Within 10 days of the receipt of notification of award from the Authority, the successful Bidder shall furnish the performance security in the form of Bank Guarantee in accordance with the conditions of contract and as per format provided in section VII of this RFP, subject to ITB 40.4 and ITB 41.4.

47.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract within the prescribed period shall constitute sufficient grounds for the annulment of the award and forfeiture of the EMD. In that event, the Authority may award the Contract to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Authority to be qualified to perform/execute the Contract satisfactorily.

48 Bidding-Related Complaints

48.1 The Bidders shall register or raise their bidding related complaint in writing at the Authority's address indicated in the BDS.

G. Fraud and Corrupt Practices

49. Fraud and Corrupt Practices

49.1 The Bidders and their respective officers, employees, agents, representatives and advisers shall observe the highest standard of ethics during the Bidding Process and subsequent to the issue of the LOA and during the subsistence of the Agreement. Notwithstanding anything to the contrary contained herein, or in the LOA or the Agreement, the Authority may reject a BID, withdraw the LOA, or terminate the Agreement, as the case may be, without being liable in any manner whatsoever to the Bidder, if it determines that the Bidder, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bidding Process or during the execution of the work. In such an event, the Authority shall suspend the bidder from participation in the tendering process for the works of MREL and/or MSRDC or any of its subsidiary companies and work under other State Sponsored Schemes for a period of One Year from the bid due date of this work and shall be entitled to forfeit and appropriate the EMD/ Performance Security, as the case may be, as Damages, without prejudice to any other right or remedy that may be

available to the Authority under the Bidding Documents and/ or the Agreement, or otherwise.

- 49.2 Without prejudice to the rights of the Authority under Clause 49.1 hereinabove and the rights and remedies which the Authority may have under the LOA or the Agreement, or otherwise if a Bidder or Contractor, as the case may be, is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bidding Process, or after the issue of the LOA or the execution of the Agreement, such Bidder shall not be eligible to participate in any tender or RFP issued by the Authority during a period of 2 (two) years from the date such Bidder, or Contractor, as the case may be, is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practices, as the case may be.
- 49.3 For the purposes of this clause 49 of ITB, the following terms shall have the meaning hereinafter respectively assigned to them:
- 49.3.1 “corrupt practice” means the offering, giving, receiving or soliciting of anything of value, pressurizing to influence the action of a public official in the process of tendering, evaluation of bids, execution of the project etc.;
- 49.3.2 “fraudulent practice” means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process;
- 49.3.3 “coercive practice” means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person’s participation or action in the Bidding Process;
- 49.3.4 “undesirable practice” means (i) establishing contact with any person connected with or employed or engaged by the Authority with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding Process; or (ii) having a Conflict of Interest; and
- 49.3.5 “restrictive practice” means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair

competition in the Bidding Process.

H. Dispute Resolution

50 SETTLEMENT OF DISPUTES BETWEEN STATE GOVERNMENT, PSUs AND ANY OTHER STATE OR CENTRAL GOVERNMENT UNDERTAKINGS/ENTITIES

50.1 In the event of any dispute or difference between the State Government, PSUs or any other State or Central government undertakings/entities relating to the interpretation and application of the provisions of the law or contracts, such dispute or difference shall be referred by either party for Arbitration to a sole Arbitrator in the Department of Public Enterprises to be nominated by the Secretary to the Government of India in-charge of the Department of Public Enterprises. The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitrator under this clause. The award of the Arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make a further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law & Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary/ Additional Secretary, when so authorized by the Law Secretary, whose decision shall bind the Parties finally and conclusively. The parties to the dispute will share equally the cost of arbitration as intimated by the Arbitrator.

50.2 In the event of any dispute or difference between the Engineer – In-Charge and the Contractor relating to the interpretation and application of the provisions of the law or contracts, such dispute or difference shall be referred by the Contractor to the Director of the Mahasamruddhi Renewable Energy Limited, whose decision shall be final and binding on the Contractor. The reference to the Director, MREL shall be made within a period of 15 days from the date of event giving rise to such dispute or difference with a notice to the Engineer–In-Charge. The Contractor shall be given a reasonable opportunity to represent its case before the Director.

Settlement of Dispute between the Engineer-In-charge & Contractor

Section-IV

SPECIAL CONDITIONS OF CONTRACTS (SCC)

ELIGIBILITY AND QUALIFICATION OF BIDDERS

1. General Eligibility requirement of the bidders:

- 1.1 The Bidder must be a company incorporated in India under The Companies Act, 1956/ 2013, as applicable.
- 1.2 The Bidder must not be debarred/blacklisted/defaulted by any Government department/agency, Public Sector Undertaking (PSU), institution/ autonomous organizations in the past.
- 1.3 The Bidder must submit a copy of the declaration for the “Compliance with the MNRE technical standards” for the Equipment.
- 1.4 The Bidder must have established high quality, environment management system, and information security standards in place and must have ISO 9001, ISO 14001 and ISO 27001 certifications for the solar photovoltaic modules and inverters.

2. Qualifying Requirement of the Bidders

2.1 Technical Criteria:

- 2.1.1 The Bidder should have designed, supplied, erected/ supervised erection and commissioned/ supervised commissioning of Solar Photo Voltaic (SPV) based grid connected power plant(s) of cumulative installed capacity of not less than 3 (Three) MW or higher, out of which at least 1 (one) plant should have been of individual capacity of 1 (One) MW or higher capacity. However, such plant capacity should have been in successful operation for at least 06 months prior to the bid due date.

OR

- 2.1.2 The Bidder should be a developer of SPV based grid connected power plant(s) of cumulative installed capacity of not less than 3 (Three) MW or higher, out of which at least 1 (One) plant should have been of 1 (One) MW or higher capacity. However, such plant capacity should have been in successful operation for at least 6 months prior to bid due date.

AND

- 2.1.3 The Bidder should have executed at least one (1) Electrical Sub-station of 11/22 kV or above voltage level, consisting of equipment such as 11/22 kV or above voltage level circuit breakers and Power transformer, either as developer or as EPC Contractor which should be in successful operation for at least one (1) year prior to the date of bid due date.

AND

The bidder should be an Indian company registered in India and should be Group company/Holding Company/ Subsidiary company of a firm meeting the requirement (s) of Clause 2.1.1 or 2.1.2 or 2.1.3 above. In such a case, Bidder shall furnish an Undertaking jointly executed by the firm qualified as per clause 2.1.1 or 2.1.2 or 2.1.3 and the Bidder along with its bid for complete performance of the contract jointly **or** severally as per format enclosed in the bid document failing which the Bidder's bid is liable to be rejected

Notes for Clause 2.1

1. The reference SPV based grid-connected power plant of 1 MW or above capacity should be at a single location developed by Bidder for itself or any other client.
2. SPV based Roof-top/Floating solar power projects, which are grid connected, shall also be considered eligible for QR purposes.
3. For clause 2.1.1 & 2.1.3, bidder shall submit certificate of successful completion and operation from the Owner. However, if bidder in clause 2.1.3 is a developer, certificate of successful commissioning of the project issued from Government Renewable Nodal Agency/Government Enterprise/ Discom/ Electricity Board etc. and evidence of successful operation from intermediary procurer/ procurer/Discom/ Electricity Board etc. shall be submitted.
4. For Clause 2.1.3, bidder shall submit documentary evidence for the value of the project certified by a Chartered Accountant.
5. The bidder shall also be considered qualified, in case the award for executing the reference work has been received by the bidder either directly from the owner of the plant or any other intermediary organization. In such a case, a certificate from such owner of plant or any other intermediary organization shall be required to be furnished by the bidder along with its techno-commercial bid in support of bidder's claim of meeting the qualification requirement as per clause 2.1.1 and 2.1.3 above. Bidder shall also submit a certificate of successful completion and operation from the Owner.
6. For Clause 2.1.2, bidder shall submit certificate of successful commissioning of the project issued from Government Renewable Nodal Agency/ Government Enterprise/ Discom/ Electricity Board etc.
7. For Clause 2.1.2, bidder shall submit evidence of successful operation from intermediary procurer/ procurer/Discom/ Electricity Board etc.
8. Developer means an entity who has either executed or got executed the work/project as owner of industrial projects

9. The execution of industrial project as EPC Contractor under Clause No. 2.1.3 means, such EPC Contractor is responsible for all the activities i.e. Design/Engineering, Procurement, Construction (with/without civil works) and Commissioning of a project/work.
10. The portion of work related to power transformer such as supply and/ or installation mentioned at cl. no. 2.1.3 shall either be done by EPC contractor by themselves or by the owner.
11. EPC projects with solar PV module supplied by developer/owner as free issue item to EPC contractor shall also be considered eligible as per clause 2.1.1

2.2 Financial Criteria:

- 2.2.1** The average annual turnover of the Bidder, shall not be less than INR 10,00,00,000/- (Indian Rupees Ten Crores only) during the preceding three (3) financial years.

In case a Bidder does not satisfy the annual turnover criteria, stipulated above on its own, its Holding Company would be required to meet the stipulated turnover requirements as above, provided that the Net Worth of such Holding Company as on the last day of the preceding financial year is at least equal to or more than the paid-up share capital of the Holding Company. In such an event, the Bidder would be required to furnish along with its techno-commercial bid, a Letter of Undertaking from the Holding Company, supported by the Holding Company's Board Resolution, as per the format enclosed in the Section VII of RFP document, pledging unconditional and irrevocable financial support for the execution of the Contract by the Bidder in case of award.

- 2.2.2** Net Worth of the Bidder as on the last day of the preceding financial year shall not be less than Rs. 5 Cr (Rupees Five Crore only) In case the Bidder does not satisfy the Net Worth criteria on its own, it can meet the requirement of Net worth based on the strength of its Subsidiary (ies) and/or Holding Company and/or Subsidiaries of its Holding companies wherever applicable, the Net worth of the Bidder and its Subsidiary (ies) and/or Holding Company and/or Subsidiary (ies) of the Holding Company, in combined manner should not be less than 100% (hundred percent) of their total paid up share capital. However individually, their Net worth should not be less than 75% (seventy-five percent) of their respective paid up share capitals.

Net worth in combined manner shall be calculated as follows:

Net worth (combined) = $(A1+A2+A3) / (B1+B2+B3) \times 100$ where A1, A2, A3 are individual Net worth which should not be less than 75% of the respective paid up share capitals and B1, B2, B3 are individual paid up share capitals.

2.2.3 In case the Bidder is not able to furnish its audited financial statements on standalone entity basis, the unaudited unconsolidated financial statements of the Bidder can be considered acceptable provided the Bidder further furnishes the following documents on substantiation of its qualification:

- a. Copies of the unaudited unconsolidated financial statements of the Bidder along with copies of the audited consolidated financial statements of its Holding Company.
- b. Certificate from the CEO/ CFO of the Holding Company, as per the format

In case where audited results for the last financial year on the bid due date are not available, the financial results certified by a practicing Chartered Accountant shall be considered acceptable. In case the Bidder is not able to submit the Certificate from a practicing Chartered Accountant certifying its financial parameters, the audited result of three consecutive financial years preceding the last financial year shall be considered for evaluating financial parameters. Further, a certificate would be required from the CEO/CFO as per the format enclosed in the Section VII of the document stating that the financial results of the company are under audit as on techno-commercial bid opening and the Certificate from a practicing Chartered Accountant certifying the financial parameters is not available.

Notes for Clause 2.2

1. Net worth means the sum total of the paid up share capital and free reserves. Free reserves means all reserves credited out of the profits and share premium account but does not include reserves credited out of the revaluation of the assets, write back of depreciation provision and amalgamation. Further, any debit balance of Profit and Loss account and miscellaneous expenses to the extent not adjusted or written off, if any, shall be reduced from reserves and surplus.
 2. Other income shall not be considered for arriving at annual turnover.
 3. "Holding Company" and "Subsidiary" shall have the meaning ascribed to them as per Companies Act, 1956
- 3. Special Terms and Conditions:** The General Terms and Conditions as well as the Special Terms and Conditions of the Tender are complementary to each other, and wherever there is a conflict, the Special Terms and Conditions shall prevail.
- 3.1 Objective of the Project** The main objective of this project is "Design, Engineering, Procurement & Supply, Construction, Testing and Commissioning of 5 MW Solar Photovoltaic Grid connected Power Plant using Photovoltaic technology of the associated ten (10) years Operation and Maintenance of the same on turnkey basis at village Bhilkheda Taluka Karanja Lad, District Washim (Interchange 8) at Chainage

182.400 km along Hindu Hrudaysamrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg.

3.2 Compliance with MSEDCL/MERC Guidelines

1. The Bidders shall make themselves fully aware of and comply with the norms and guidelines provided by MSEDCL/MERC if any, towards the Project
2. The Contractor shall ensure that the Project shall comply with all the norms and guidelines of MERC/MSEDCL if any, and subsequent clarifications or amendments issued from time to time. The Contractor is required to refer the compliance documents of MSEDCL/MERC if any, for necessary compliances of MSEDCL/MERC requirements.
3. In case of any conflict between the compliance of MSEDCL/MERC and this RFP or any aspect of the Project, the Contractor shall immediately notify the Authority for clarity.
4. Any changes in the Tender or the Contract including but not limited to the Scope of Work, Guarantees and Warranties to comply with the guidelines or provisions of the Scheme under which this project is being executed shall have no bearing on the EPC Contract Price & O&M Contract Price.

3.3 Project Completion Time: The Time for Completion for all of the Plants in total shall be 09 months (Nine Months) till commissioning from the Effective Date of the Notification of Award (NOA). Further Contractor is also to provide Operation & Maintenance Contract of Solar Photo Voltaic Plant for a period of 10 (Ten) years from the date of Operational Acceptance of the individual Plants or from the date of issuance of the completion certificate by the Authority.

3.4 Site Locations

- a. The proposed solar PV plants are located across the HHBTMSM and the details of individual plant, technical power capacity, evacuation sub-station are given in the Appendix II. Prospective Bidders are advised to visit the site to study the actual conditions and go through the plans/ drawings connected to the present scope of work including power evacuation system, ground conditions, availability of water etc. and get acquainted with the same before attending Pre-bid meeting. For visit of site or any clarifications bidders may contact the tendering authority.
- b. The Bidders at their own responsibility, cost and risk shall inspect and examine the site and its surrounding, and shall satisfy themselves fully before submitting bids as to the form and nature of the site, the geological conditions decisive for the success of the project, the means of access to the site, the loading and unloading facilities etc. In general, the Bidders shall themselves obtain all necessary information as to risks, contingencies and other circumstances susceptible to influence or affect their bids.

- c. Bidders shall acquaint themselves on their own responsibility with laws and regulations in India under which the work is to be performed including those which may influence, in general or in detail, design, supply, transportation, erection, operation of the equipment and requirement of manpower. Any failure or neglect to do so will not absolve the potential Contractor from his contractual obligations.
- d. It is specially emphasized that it shall be the responsibility of the Bidders to have themselves familiarized with the prevailing conditions and that no claim relating thereto for additional payment or adjustment of a Contract price will be acceptable after the submission of their Bid.
- e. Once a bidder submits its bid, it shall be deemed that the Bidder has visited the site/area and got fully acquainted with the working conditions and other prevalent conditions and fluctuations thereto irrespective of the fact that whether he has actually visited the site/area or not and has taken all the factors into account while quoting its bid.
- f. Prospective Bidders are advised to carefully read the RFP document along with Annexure, understand them in the proper perspective and then fill the Technical Bid Format and Price Bid Format

3.5 Contract Performance Security

1. Against the EPC Lump sum Turnkey Contract of the project, within 10 days from the issuance of the Letter of Acceptance the successful bidder shall furnish unconditional and irrevocable Bank Guarantees issued by any Nationalized Banks in the manner as mentioned below.
2. The Contract Performance Security shall be in the form of Bank Guarantee only and shall be in the currency of the Contract and shall be in the name of the Authority as "Mahasamruddhi Renewable Energy Limited" payable at Mumbai.
3. The Contract Performance Security against this Contract needs to be furnished in 02 (Two) different stages as mentioned below: -
 - **First Five Years (Supply and Services):** The value of the Contract Performance Security shall be 10% of the Contract Value (i.e., total sum of the Supply, Service and absolute value of O & M Contract) and will remain valid 90 (Ninety) days beyond half of the prescribed O & M Period, i.e. 05 (five) Years. Hence, 10% Contract Performance Security needs to be furnished for the first 05 (five) Years of the O & M period.
 - **Second Stage (O&M):** The Performance security shall be furnished 30 days prior to completion of first 05 years of O&M and value of the Contract Performance Security shall be 05% of the Contract Value (i.e., total sum of the Supply, Service and absolute value of O & M Contract) and will remain valid 90

(Ninety) days beyond the balance O & M Period, i.e. balance 05 (five) years. Hence, 05% Contract Performance Security needs to be furnished for the last 5 (five) of the O & M period.

4. Contractor needs to furnish the revised Contract Performance Security amounting to 05% (under Second Stage) of the total Contract Value as mentioned above within the validity period of the Contract Performance Security submitted at the First Stage.
5. In case the Contractor fails to furnish the Contract Performance Security mentioned under the Second Stage within the prescribed time period as mentioned above, Authority at their sole discretion will forfeit the Contract Performance Security furnished at the First Stage.
6. The Contract Performance Security shall be towards proper and satisfactory performance of the contractual obligations by the Contractor and performance of equipment.
7. In case of any default or failure of the Contractor to comply with the requirements of any of the Obligations covered under this RFP Document and/ or Contract Agreement shall constitute enough grounds for forfeiture of the entire Contract Performance Security which will be inclusive of GST.
8. Further, any delay beyond 10 days shall attract interest @ 1.25% per month on the total Contract Performance Security amount, calculated on pro-rata basis accordingly. The Authority at its sole discretion may cancel the Contract Agreement/ LOA & forfeit 100% of EMD inclusive of GST, in case Contract Performance Security is not submitted within 15 days of issuance of LOA. However, total project completion period shall remain the same. Part Security shall not be accepted.
9. Contract Performance Security submitted shall be released to the Contractor without any interest not later than 90 (Ninety) days after the successful completion of the complete O&M period (10 Years) subject to the approval and acceptance of the O&M period deliverables.
10. The performance security shall be refunded only if the contractor has complied with all the terms and conditions of the contract and if any amount is due and payable by the contractor to MREL/MSRDC or any of its subsidiary companies, the amount of performance security shall be first adjusted against the said outstanding and remainder if any shall be refunded to the Contractor as stated above.

3.6 Functional Guarantees

- a. During the Operational Acceptance after providing 03 chances for the Performance Ratio (PR) demonstration, any shortfall in the PR as determined through the PR Test Procedure specified in Section V, Scope of Work and Technical Specifications, & "PERFORMANCE GUARANTEE TEST PROCEDURE", will

attract imposition of penalty. For every 1% shortfall in PR below the committed PR value, a penalty of 1% of the total Contract Value (i.e., total sum of all the Supply, Service and absolute value of O & M Contract) shall be levied to a maximum of 5%. In case the Contract Performance Security has already been encashed on account of any default/delays, the penalty amount will be recovered from any due payments to the contractor. In case the Plant PR Shortfall is more than 5% than the committed PR value, then the total plant will be accepted on as-is basis & the total Contract Performance Security submitted by the contractor will be forfeited & payments linked to operational acceptance will not be made.

- b. First year CUF (Capacity Utilization Factor) shall be minimum 25.09%. Any shortfall from committed CUF shall attract the Liquidated Damages @ 25% of power sale tariff agreed between MREL and MSEDCL for such shortfall. The CUF shall be evaluated on annual basis.
- c. In case the Project fails to generate any power continuously for 1 month any time during the O&M period, apart from the force majeure and grid outages as certified by competent authority, it shall be considered as “an event of Contractor’s default”. In the case of default, the entire Contract Performance Security will be forfeited & the Authority may terminate the O&M contract.
- d. Penalty during O&M period against breakdown of other Infrastructure of Solar Power Plant which doesn’t affect the generation of power, directly such as but not limited to civil infrastructure, water supply system/network, other Infrastructure developed by the Contractor as per Scope of Work for the Project (Scope of Works & Technical Specifications) shall be penalized @ Rs.1000/day, per incident of breakdown reported beyond 48 Hours of such reporting. Cumulative value of such penalty shall be limited to 50% of yearly O&M cost. If the cost of penalty increases to more than 50% of the yearly O & M cost, the performance security shall be forfeited and Contractor shall not be entitled to the amount incurred towards O & M for that year.
- e. The Penalty specified on account of delays, as specified in Liquidated Damages and Penalty specified on account of deviations in Functional Guarantees as above shall be assessed and levied independent of each other.

3.7 Scope of Service

The item of work to be performed on all equipment and accessories shall include but not limited to the following:

- Transportation, unloading, receiving and storage at site.
- Arranging to repair and/or re-order all damaged or short-supply items.
- Final check-up of equipment and commissioning and putting the system into successful operation, feeding power to the local internal grid.

3.8 Training of MREL/MSRDC personnel

The Bidder shall provide training on Plant operations and maintenance to three (3) teams of 5-10 personnel each (Engineers and Technician/Operators) of the Authority as and when requested by the Authority. The cost if any to be incurred for such training shall be solely borne by the Contractor. No extra cost on such account will be paid by The Authority.

3.9 Mode of execution

The entire work shall be executed on turnkey basis. Any minor item(s) not included in the schedule but required for completion of the work shall have to be carried out/supplied without any extra cost to the Authority. Such works, not listed in the schedule of works but elaborately described to perform or to facilitate particular operation(s) required for completion of the project shall deemed to have been included in the scope of this work and the Contractor shall supply, install, execute operator and maintain the same, as the case may be, without any extra cost to the Authority

3.10 Programme of Work

The Contractor shall submit the programme of work within 15 days from the date of receipt of Letter of Acceptance. The programme shall include a Bar Chart indicating therein the starting position and completion date of each of the major items of work.

3.11 Starting of Work

The Contractor shall be required to start the work within 15 (fifteen) days from the date of issue of Letter of Acceptance and shall report to the Authority accordingly

3.12 Completion Schedule

- The time of completion and Commissioning of the Plant as per Tender Notice and thereafter 10 year of O&M period from the date of commissioning of the plants.
- The Contractor shall give the Authority at least fifteen (15) days advanced written notice, of the date on which it intends to synchronize the Power Project to the Grid System
- The Contractor shall prepare the completion schedule accordingly and in conformity with provisions of technical specifications and carry out the work as per this schedule subject to "Force Majeure" conditions. The Contractor shall mobilize resources keeping in view, the above scheduled completion period.
- The Contractor shall provide the power evacuation schedule as and when required or asked by any Central or State Government agency(s).

3.13 Force Majeure Event

- 3.13.1** 'Force Majeure Event' means and includes any event or circumstance or combination of events those stated below that wholly or partly prevents or unavoidably delays an Affected Party in the performance of its obligations under

this Agreement, but only if and to the extent that such events or circumstances are not within the reasonable control, directly or indirectly, of the Affected Party and could not have been avoided if the Affected Party had taken reasonable care or complied with Prudent Utility Practices:

- Act of God, including, but not limited to lightning, fire not caused by Contractors' negligence and explosion (to the extent originating from a source external to the site), earthquake (above 7.0 magnitude on Richter Scale), volcanic eruption, landslide, unprecedented flood, cyclone, typhoon or tornado;
- Any act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, blockade, embargo, revolution, riot, insurrection, terrorist or military action, quarantine;
- Radioactive contamination or ionizing radiation originating from a source in India or resulting from another Force Majeure Event mentioned above.
- Any event declared as a force majeure event by the Central/State Government.

3.13.2 Force Majeure Exclusions:

Force Majeure shall not include (i) any event or circumstance which is within the reasonable control of the Parties and (ii) the following conditions, except to the extent that they are consequences of an event of Force Majeure:

- Unavailability, late delivery, or changes in cost of the plant, machinery, equipment, materials, spare parts or consumables for the Power Project;
- Delay in the performance of any Contractor, sub-Contractor or their agents;
- Non-performance resulting from normal wear and tear typically experienced in power generation materials and equipment;
- Strikes at the facilities of the Contractor / Affected Party;
- Insufficiency of finances or funds or the agreement becoming onerous to perform; and
- Non-performance caused by, or connected with, the Affected Party's:
 - Negligent or intentional acts, errors or omissions;
 - Failure to comply with an Indian Law; or
 - Breach of, or default under this Contract Agreement.
- Normal rainy seasons and monsoon
- Any Transport strikes not directly affecting the delivery of goods from manufacturer to site

3.13.3 In the event of either party being rendered unable by Force Majeure to perform any obligation required to be performed by it under this Contract, relative obligation of such party shall be treated as suspended during the period the Force Majeure event lasts.

3.13.4 Upon occurrence of a force majeure event, the party alleging that it has been rendered unable as aforesaid, shall notify the other party in writing by registered

notice within 48 (forty-eight) hours of the alleged beginning of such event thereof giving full particulars and satisfactory evidence in support of its claim.

- 3.13.5** Further, within 7 (seven) days, the affected party shall furnish a detailed Contingency Plan to overcome the effect of the incident and bring the project on its schedule after cessation of the effect of the Force Majeure event.
- 3.13.6** The Affected Party shall give notice to the other Party of (i) the cessation of the relevant event of Force Majeure; and (ii) the cessation of the effects of such event of Force Majeure on the performance of its rights or obligations under this Agreement, as soon as practicable after becoming aware of each of these cessations.
- 3.13.7** Time for Performance of the relative obligation suspended by the force majeure shall stand extended by the period for which such Force Majeure event lasted.
- 3.13.8** If works are suspended by Force Majeure conditions lasting for more than two months, the Authority shall have the option of cancelling this Contract in whole or part thereof, at its discretion in which case, the Contractor will not be entitled to claim any compensation for Force Majeure and shall take appropriate steps to insure its men and materials utilized by it under the Contract.

3.14 Site inspection & Basis of bid

The volume and quantity of work indicated in schedule of works may vary. The Contractor shall visit the Site before quoting rate for civil works. After taking into consideration all aspects of the site, condition of soil, availability of utilities, distance from nearest Sub Stations, ROW issues, etc., the Contractor shall quote for civil works. No claim on any account will be entertained post bidding stage. The foundation design of module structure and the control room shall have to be approved by the Authority. In case of any defects arising in the project during defect liability period and O & M period, the Contractor shall have to rectify the same at its own cost.

3.15 Price escalation

The rate(s) quoted against the work shall remain firm during the entire Contract period.

3.16 Schedule of rates and payment

All payment shall be made against invoices raised in line with the approved billing break up under individual heads of Supply, Services and Civil works. Following general payment terms will be followed for the payment purposes.

3.16.1 Supply portion of the contract:

- (i) Interest bearing adjustable initial advance (OPTIONAL) of 10% of the Contract Value (i.e., total sum of all the Supply Contract) shall be released to successful bidder upon receipt of unconditional acceptance of NOA, detailed Performa

invoice of contractor and against submission of unconditional, Contract Performance Security & irrevocable Advance Bank Guarantee (ABG) with a validity period up to date of final commissioning total amounting to 110% of total advance amount. The ABG needs to be submitted in addition to the Contract Performance Security. The annual interest rate shall be calculated based on SBI one-year MCLR as applicable from release date of Advance payment.

- (ii) Seventy percent (70%) payments shall be paid on Pro rata basis against supply, receipt and acceptance of Materials at site on submission of documents (except Advance Bank Guarantee) indicated under clause 1 above, Contractor's detailed invoice & packing list identifying contents of each shipment, evidence of dispatch (GR/ LR copy), Manufacturer's/ Contractor's Guarantee certificate of Quality, submission of the certificate by the Executing Agency's authorized representative that the item(s) have been received and MDCC (Material Dispatch Clearance Certificate) issued by Employer's authorized representative in original.
- (iii) If Successful Bidder has opted for advance then, Ten percent (10%) (full amount of advance) shall be adjusted while making payments of this installment. Also, up-to-date accrued interest shall also be recovered.
- (iv) Twenty percent (20%) payments shall be paid against successful erection, testing and commissioning of materials at site and Operational Acceptance of the Complete Facility pursuant to successful Guarantee Tests and demonstration of Performance Ratio (PR) including submission of all as-built drawings and documents.
- (v) Final Ten percent (10%) payment of Supplies shall be paid after CUF demonstration on completion of first year of O&M of the Complete Facility pursuant to submission of all requisite documentation. However, this Payment may also be released after demonstration of PR and submission of all requisite documentation on the submission of additional Bank Guarantee of equivalent amount. The BG shall be valid up to demonstration of CUF for the successful first year of Operation. However, in case of delay, the BG shall be extended.

3.16.2 Service portion of the contract:

- (i) For Freight and Insurance Portion, the payment shall be made in line with Supply Portion of the First Contract, as described in point (3.16.1) above, without releasing any initial advance.
- (ii) For Erection, Testing and Commissioning Portion, the payment shall be made as detailed below:
 - Eighty Percent (80%) of the total price of Design, Engineering, Erection, Testing and Commissioning shall be paid on pro-rata basis on completion of

installation of equipment on certification by the Engineer-In-Charge/ Project Manager for the quantum of work completed after successful clearance of quality check points involved in the quantum of work billed.

- Ten Percent (10%) of the total price of Design, Engineering, Erection, Testing and Commissioning shall be paid on Operational Acceptance of the Facility pursuant to successful integration with existing internal grid system, Guarantee Tests and demonstration of PR.
 - Final Ten percent (10%) payments shall be paid after CUF demonstration after first year of O&M of the Facility pursuant to submission of all requisite documentation. However, this Payment may also be released after successful Guarantee Tests and demonstration of PR and submission of all requisite documentation on the submission of additional Bank Guarantee of equivalent amount. The BG shall be valid up to demonstration of CUF for the successful first year of Operation. However, in case of delay, the BG shall be extended suitably.
- (iii) For Civil & Allied works portion, of the 1st contract (supply), the payment shall be made as detailed below:
- Eighty Percent (80%) of the total price of Civil Works shall be paid progressively on certification by the Project Manager/ Engineer In - Charge for the quantum of work completed/ Milestones achieved
 - Ten Percent (10%) of the total price of Civil Works shall be paid on completion of all the civil works.
 - Final Ten (10%) of the total price of Civil Works shall be paid after CUF demonstration after first year of O&M of the Facility pursuant to completion of all the civil works including finishing and debris removal. However, this Payment may also be released after completion of all the civil works including finishing and debris removal on submission of Bank Guarantee of equivalent amount. The BG shall be valid up to demonstration of CUF for the successful first year of Operation. However, in case of delay, the BG shall be extended suitably.

3.16.3 Operation and Maintenance Part

- 3.16.3.1** Payment towards Operation and Maintenance of the entire Project will be released on quarterly basis till completion of the operation and maintenance period to the satisfaction of the Authority.
- 3.16.3.2** In case of any default, Non-Performance or breach of contractual conditions of the O&M contract during the O&M period, the penalties/deductions, if applicable will be liable to be deducted as below:



- First, from the Quarterly O&M payments (certified by the Engineer-In-Charge) that are made to the contractor
- And then, if required, from the Contract Performance Security submitted against O&M

SECTION-V

SCOPE OF WORKS & TECHNICAL SPECIFICATIONS

1. DEFINITIONS

The following words and expressions shall have the meaning hereby assigned to them:

1. **“Approved”** and **“Approval”**, where used in the Contract shall mean respectively, approved by and the approval of the Employer/Engineer-in-charge in writing. When the words 'Approved', 'Approval', 'Subject to Approval', 'Satisfactory', 'Equal to', 'Proper', 'Requested', 'As directed', 'Where Directed', 'When Directed', 'Determined by', 'Accepted', 'Permitted', or words and phrases of like import are used, the approval, judgment, direction etc., is understood to be a function of the Employer/Engineer-in-charge.
2. **“B.I.S”** shall mean specifications of Bureau of Indian Standards (BIS);
3. **“Capacity Utilization Factor” (CUF)** shall mean the ratio of actual energy generated by Solar Photovoltaic project at the point of interconnection with the grid and recorded in the solar generation meter & SCADA over the year to the equivalent energy output at its rated capacity over the yearly period. (***CUF = actual annual energy generated from the plant in kWh / (installed plant capacity in kWp * 365 * 24)***).
4. **“CAPEX”** shall mean Capital Expenditures.
5. **“CAPEX model”** shall mean where the roof/facility owner hires an EPC company to install solar Roof Top PV system and invests the entire capital expenditure of the Project. The entire system will be owned by roof/facility owner, however, responsibility of O&M including safety & security of the system during the O&M period shall be of the EPC Contractor.
6. **“CEA”** shall mean Central Electricity Authority.
7. **“Commissioning”** means Successful operation of the Project / Works by the Contractor, for the purpose of carrying out Performance Test(s) as defined in RFP.
8. **“Competent Authority/MREL’** shall mean the Director of the Mahasamruddhi Renewable Energy Limited himself, its successors and assigns,
9. **“Completion”** are broadly categorized into the following:
 - a. **Physical Completion** shall mean that the works related to the execution and installation of project (Ground Mounted) (or a specific part thereof where specific parts are specified in the Contract Agreement Document) have been completed operationally and structurally, commissioned, integrated with ICCG, put in a tight and clean condition, power evacuation system functional and start generating power to the satisfaction of Engineer-In-Charge, and physical completion certificate has been issued by Engineer-In-Charge.

- b. Final Completion/Operational Acceptance** shall mean that the O&M of the project (Ground Mounted projects has been undertaken and completed as described in the relevant sections of the RFP document for the entire tenure of 120 months, with the plant performance and state in accordance with the parameters set out in the RFP document and the project is handed over to the MREL/MSRDC in excellent and healthy condition without any pending defect/s to the satisfaction of Engineer-In-Charge
10. **“Completion Certificates” shall mean the following:**
- a. Physical Completion Certificate** shall mean the certificate to be issued/ issued by the Engineer-in-charge, when the works under the project are physically completed to his satisfaction.
- b. Final Completion/Operational Acceptance Certificate** shall mean the certificate to be issued/issued by the Engineer-in-charge on completion of O&M tenure of the contractor, demonstration of plant performance in accordance with parameters set out in RFP document and handing over of project to the Authority in excellent and healthy working condition to his satisfaction.
11. **“Compliance with Laws”** shall mean the Contractor shall in performing the Contract, comply with all applicable Laws related to all actions of its obligations under the Contract.
12. **“Contract”** shall mean the agreement entered into between the Authority and the Contractor for execution of Works including therein all contract documents like Conditions of Contract, Specifications, Drawings, Prices, Bill/Schedule of quantities, Schedule of rates and prices (if any), RFP document, the correspondence exchanged between the Authority and the Contractor and shall constitute the Contract, and the term “the Contract” shall in all such documents be construed accordingly.
13. **“Contract Documents”** shall mean collectively the RFP document, Designs, Drawings, Specifications, Notification of Award/ Letter of Intent/ Letter of Acceptance and agreed variations (if any), such other documents constituting the tender and acceptance thereof.
14. **“Contract Period”** shall mean the period from the date of project commencement as specified in the work order up to and including the last day of the comprehensive operation and Maintenance Period.
15. **“Contractor’s Equipment”** shall mean all plant, facilities, equipment, machinery, tools, apparatus, appliances or things of every kind required in or for completion of Works that are to be provided by the Contractor, but does not include Plant and Equipment, or other things intended to form or forming part of the Project.

16. **“Contractor’s Representative”** shall mean any person nominated by the Contractor and approved by the Authority/Engineer-In-Charge in the manner provided in the Contract Documents (Contractor’s Representative – Project Engineer/Manager) hereof to perform the duties delegated by the Contractor.
17. **“Contractor’s Works”** or **“Manufacturer’s Works”** shall mean the places including land which are used by the Contractor or any of its Sub-vendor or Sub-Contractor for the manufacture of equipment for the Plant or performance of Work.
18. **“Day”** shall mean the calendar day of the Gregorian Calendar from midnight to midnight.
19. **“Defect Liability Period”** or **“Period of Liability”** shall mean in relation to the work means the specified periods from the date of issue of Physical Completion Certificate up to the date of issue of the Final Completion Certificate during which any defects that may appear in the works shall be made good by the Contractor without any financial implications to the Authority. If defects are not removed till the last day of contract, DLP will be extended till such rectification of the work is completed to the satisfaction of the Engineer-In-Charge. No additional charges for such delay in curing the defects will be paid.
20. **“Drawings”** shall mean the drawings referred to in the Specification and any modification to such drawings approved in writing by the Engineer-In-Charge and such other drawings, diagrams or sketches as may from time to time be furnished or approved in writing by the Engineer-in-charge. This includes the following :
 - a) Supplementary drawings furnished by the Engineer-In-Charge to clarify and to define in greater detail the intent of the Contract;
 - b) Drawings submitted by the Contractor with its bid provided such drawings are acceptable to the Engineer-In-Charge;
 - c) Drawings furnished by the Engineer-In-Charge to Contractor during the progress of the Work;
 - d) Engineering data and drawings submitted by the Contractor during the progress of the Work provided such drawings are acceptable to the Engineer-In-Charge.
 - e) All drawings attached to the Contract and made a part thereof.
21. **“Authority”** shall mean Mahasamruddhi Renewable Energy Limited and includes MREL’s authorized representatives or successors or assigns.
22. **“Facility”** shall mean the entire system to be designed and constructed in accordance with the provisions hereof, including the equipment, structures, fencing, lighting, testing and analysis equipment, tools, computers, software programs, safety equipment, plant machinery, supplies, instruments and inventory incorporated therein, as well as all open areas within the site, and including any additions, modifications, alterations, adjustments, replacements and repairs as may be made thereto from time to time.

23. **“Government Authority”** shall mean any Indian entity, MREL or Body exercising executive, legislative, judicial, regulatory or administrative functions including, without limitations, any local government authority in India, agency, department, board, commission or instrumentality of India or any political subdivision thereof, court, tribunal, arbitrator or self-regulatory organization.
24. **“Functional Warrantee/Guarantee Test(s)”** shall mean the test(s) specified in the Contract to be carried out to ascertain whether the Work(s) or a specified part thereof is able to attain the functional guarantees specified in the Contract.
25. **“IEC”** shall mean specifications of International Electro-technical Commission;
26. **“Indian Rupee”/“Rupee”** shall mean the Indian National Rupees (INR).
27. **“Installation Services”** shall mean all those services ancillary to the supply of the material, Plant and Equipment for the Works, to be provided by the Contractor under the Contract; e.g., transportation and provision of marine or other similar insurance, inspection, expediting, site preparation works (including the provision and use of Construction Equipment and the supply of all construction materials required), fabrication, erection/installation, testing, pre-commissioning, commissioning, operations, maintenance, the provision of operations and maintenance manuals, training, etc.
28. **“Instructions”** shall mean any instructions, drawings, specifications, details, directions and explanations and/or instructions in writing issued by the Engineer-in-charge/ Director-In-Charge from time to time during the subsistence of the Contract for execution of the Works during the entire period of contract.
29. **“kWp”** shall mean kilo-Watt Peak or the module capacity of rooftop solar PV plant.
30. **“kWh”** shall mean kilo-Watt-hour;
31. **“Manufacturer”** shall mean any entity or firm who is the producer and furnisher to the Contractor of any material or designer and fabricator of any goods/equipment/ systems/facilities which is to be incorporated in or forms part of the Works.
32. **“Material”** shall mean all supplies, including consumables used by the Contractor for incorporating in the Works.
33. **“MNRE”** shall mean Ministry of New and Renewable Energy, Government of India;
34. **“Operational Acceptance”** shall mean the acceptance by the Engineer-In-Charge of the Works (or any part of the Works where the Contract provides for acceptance of the

Works in parts), certifying the Contractor's fulfillment of the Contract in respect of Functional Guarantees of the Works (or the relevant part thereof) in accordance with the provisions the Contract hereof.

35. **"O&M"** shall mean Operation & Maintenance of Solar Power Projects for 10 years after issuance of Final Completion certificate;
36. **"Project capacity"** means Capacity of rooftop solar PV projects in kWp as mentioned in this RFP installed at the locations specified in the RFP along the Hindu Hrudaysamrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg. The project capacity specified for solar PV projects means the PV module capacity only.
37. **"Performance Ratio" (PR) means:** "Performance Ratio" (PR) means the ratio of plant output versus installed plant capacity at any instance with respect to the radiation measured. $PR = (\text{Measured output in kWh at solar generation meter}) / (\text{Installed Plant capacity in kW} * \text{Measured solar insolation in kWh/m}^2 * 1 \text{ m}^2/\text{kW})$
38. **"Performance Tests"** shall mean such tests as are prescribed in the RFP Document to be carried out by the Contractor before the Plant and the Equipment are taken over by the Engineer-In-Charge/the Authority.
39. **"Point of Common Connection/PCC"** the electrical boundary between the project and the electrical network of the utility.
40. **"Preliminary Operation"** shall mean all activities undertaken as part of commissioning and shall include mechanical and electrical checkouts, calibration of instrument and protection devices, commissioning of sub and supporting systems and chemical cleaning of the plant, system and equipment covered under the Contract.
41. **"PV"** shall mean Photovoltaic
42. **"Punch List"** shall mean the list of minor works prepared by the Engineer-In-Charge for rectification/completion in order to ensure that the "Works" fully complies with all of the standards and requirements set forth in the Contract.
43. **"RFP"** shall mean Request for Proposal (RFP) / Bid document / Tender document.
44. **"Services"** shall mean all the work and obligations of Contractor under the Contract including without limitation to the works and services briefly described in the Specification.
45. **"Site"** shall mean the land and other places upon which the ground mounted solar projects are to be installed.

46. **“Specification”** shall mean collectively all the terms and stipulations contained in those portions of the Contract known as Conditions of Contract, Special conditions, the technical Specifications and such Amendments, Revisions, Deletions or Additions, as may be made in the Contract agreement and all written Agreements made or to be made pertaining to the method and manner of performing the Work or to the quantities and qualities of the materials to be furnished under this 'Contract'. Further in absence of any specific reference in I.S.S. the standards and specifications of MNRE/NRANVP or MREL as the case may be, will be followed as per the consent of Engineer-In-Charge.
47. **“Temporary Works”** shall mean all temporary works of every kind required for execution, completion or maintenance of the Works under the contract, which shall be constructed, installed and removed by the Contractor.
48. **“Tender”** shall mean the tender submitted by the Contractor for acceptances by the Authority.
49. **“Tendered Capacity”** shall mean the Total aggregate capacity in kWp/MWp proposed and allocated by MREL to the Contractor through this bidding process as per terms and conditions specified herein;
50. **“Wp”** shall mean Watt Peak.

2. INTRODUCTION

1. Background

- 1.1 Maharashtra State Road Development Corporation Ltd (MSRDC Ltd), Mumbai, a Government of Maharashtra undertaking (MSRDC) is a Corporation established and fully owned by the Government of Maharashtra through a resolution dated 9th July, 1996 and has been incorporated as limited company under company Act 1956 on 2nd August 1996 engaged in the development of Road infrastructure on State Highways, National Highways, Expressways, urban transport on Sea Link. As part of this endeavor, MSRDC as Implementing Agency has formed an Special Purpose Vehicle (SPV) in the name of Nagpur Mumbai Super Communication Expressway Limited (NMSCEL) for the development of Access Controlled Nagpur – Mumbai Super Communication Expressway called as “Hindu Hrudaysamrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg” (HHBTMSM) starting from 0.000 km at Shivmadka Nagpur) to 701 km at Vadape (Thane) in the State of Maharashtra. The entire length of 701 km has been divided in 16 construction packages; EPC contractors have already been appointed for development/ construction of the Expressway.
- 1.2 MSRDC intends to Solarize the highway which is first of its kind initiative in the country for solarization of highways. MSRDC has identified multiple locations along the highway with adequate space available for setting up of ground mounted solar PV projects. For execution of the said solar projects had formed Special Purpose Vehicle viz. Mahasamruddhi Renewable Energy Limited (MREL)
- 1.3 MREL intends to appoint competent and eligible Contractors for designing, engineering, procurement and construction of ground based Grid Connected Solar PV Power Plant at village Bhilkheda Taluka Karanja Lad, District Washim (Interchange 8) at Chainage 182.400 km along Hindu Hrudaysamrat Balasaheb Thackeray Maharashtra (HHBTM) Samruddhi Mahamarg on Engineering, Procurement & Construction (EPC) Mode.
- 1.4 MREL has decided to carry out a single stage two envelop bidding process for appointment of competent and eligible Contractors for above work. MREL now invites Request for Proposal (RFP) and has decided to carry out the bidding process for selection of a Bidder to whom the Project may be awarded.
- 1.5 The Selected Bidder (the “Contractor”) shall be responsible for designing, engineering, procurement and construction of the Solar PV Power Plant under and in accordance with the provisions of an engineering, procurement and construction contract (the “EPC Contract”) to be entered into between the Contractor and the Authority in the form provided by the Authority as part of the Bidding Documents pursuant hereto. The Contractor shall also be responsible for the maintenance of the project during the Defect Liability Period (DLP) and O & M period. The scope of work will broadly include setting up solar power plant along Hindu Hrudaysamrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg and maintenance of the



Project during the Defect Liability Period and operations & maintenance period, which shall be Ten (10) years from the date of issue of Final Completion Certificate.

- 1.6 The assessment of actual costs, however, will have to be made by the Bidders before submitting their offers.
- 1.7 The Agreement sets forth the detailed terms and conditions for award of the project to the Contractor, including the scope of the Contractor's services and obligations.

3. PROJECT PARTICULARS

3.1 Design and Engineering	
Minimum Proposed AC cumulative capacity (MW)	5
Minimum DC cumulative capacity (MWp)	7
Technology	Mono-crystalline PERC Modules
Origin of manufacturer	
O&M period	10 years
Design life of PV Power plant	25 years
Site Location and Land Details	
State	Maharashtra
Type of Land	Govt. Land
Owner of Project	MREL
Owner of Land	MREL
Electrical Interconnection Details for 2 MW Solar Plant	
Substation Details (Belmandala)	33/11 kV
Distance to connecting substation (approx.)	6.5 km Approx.
Electrical Interconnection Details for 3 MW Solar Plant	
Substation Details (Kakadshivni)	33/11 kV
Distance to connecting substation (approx.)	1.5 km Approx.
Performance Parameters	
Performance Ratio (PR)	75%
Capacity Utilization Factor (CUF)	25.09%
Other Details	
Construction Water	To be arranged by Contractor
Construction Power	To be arranged by Contractor

4. SCOPE OF WORK –

The scope of this RfP covers:

The Scope of Work under this RFP, includes site surveys, design & engineering, procurement & supply of equipment and materials, testing at manufacturers works, inspection, packing and forwarding, supply, receipt, unloading and storage at site, associated civil works, services, permits, licenses, installation and incidentals, insurance at all the stages, erection, testing and commissioning of Grid Interactive Solar Power Generating System of 5 MW AC cumulative capacity and performance demonstration with associated equipment and materials along with associated transmission system up to 33/11 kV at designated substations on turnkey basis in the state of Maharashtra, India and 10 years comprehensive operation and maintenance of the plant thereafter.

a) The equipment and materials for 5 MW AC (cumulative) Grid Interactive Solar Power Generating System (s) with associated system (typical) shall include but not be limited to the receipt, unloading, storage, erection, testing and commissioning of all supplied material for the following:

- i. Solar PV modules, Module mounting structures, fasteners, array foundation and module interconnection.
- ii. Array Junction boxes, distribution boxes and fuse boxes: MCBs, Surge Arrestors with string monitoring capabilities and with proper lugs, glands, ferrules, terminations and mounting structures.
- iii. DC and AC cables of appropriate sizes with adequate safety and insulation.
- iv. Power Conditioning Units (PCU)/Inverter (String or Central grid-tie) with SCADA compatibility, common AC power evacuation panel with bus bars and circuit breakers
- v. LT & HT Power Interfacing Panels, Plant Monitoring Desk, AC & DC Distribution boards.
- vi. Step up transformers (Inverter Duty with suitable intermediate voltage) in relevance with state grid code and inverter manufacturer requirements.
- vii. Suitable protection system.
- viii. LT Power and Control Cables including end terminations and other required accessories for both AC & DC power.
- ix. Internal 415V interconnection & indoor feeder panels to cater auxiliary needs of Plant.

- x. Data acquisition system with remote monitoring facilities. Provision for specific data transfer to the State Load Dispatch Centre (SLDC) may be provided as per the DISCOMs/MSEDCL requirement. Data shall also be provided to MREL server.
- xi. Weather Monitoring shall include but not limited to the following:
 - Pyranometers- For horizontal and tilted plane
 - Ultrasonic Anemometer (for wind speed and direction)
 - Temperature Sensor- Ambient and Module surface
 - Power source to all the sensors
 - Data logger
- xii. Lightning arrestors for entire plant area.
- xiii. PVC pipes, cable conduits, cable trays and accessories/trenches.
- xiv. Earthing of the entire plant as per relevant standards.
- xv. Control room for Solar Power Generating Systems (SPGS).
- xvi. Testing, maintenance and monitoring of equipment(s). Spares & consumables, as required, for 10 years O&M period.
- xvii. Necessary CCTV cameras at suitable locations in the plant area in order to capture any trespassing, theft & pilferage etc.
- xviii. Fire detection & protection system in the plant area. Adequate number & types of fire extinguishers. All safety gadgets during Construction and O&M period including but not limited to, anti-static rubber mats of appropriate grade, PPE, rubber gloves and shoes etc.
- xix. Arrangement of topographical, Geological, soil test & water test report.
- xx. Contractor will construct & erect complete evacuation line along with ABT meters from the switchyard of solar power project to the nearest MSEDCL/MSETCL substation. Energy meter (ABT) will be located at MSEDCL Substation. The RoW issues if any, shall be in the scope of Contractor, however, all coordination will be done by MREL/MSEDCL.
- xxi. Construction of bays and installation of all necessary associated equipment and protection and metering system at interconnection point at MSEDCL/MSETCL substation.
- xxii. Construction of office cum control room or alternate 10X40 feet prefabricated portable cabin with washroom.

- xxiii. Construction of security cabin at strategic location inside the plant.
- xxiv. EPC Contractor will carry the O&M of the evacuation line and associated equipment, viz. Breakers, Isolators, Bays, CT, PT, ABT meter, Protection & metering etc. for 10 years.
- xxv. Arrangement of Water and Electricity during construction and O&M period.
- xxvi. Security of the system during construction and O&M period.

b) Scope of Work for O&M (10 years)

- i. Keep the measured daily generation, import, auxiliary, fault log data at regular intervals and provide the same to MSRDC/MREL in electronic form compatible in excel format. The right to use the data shall remain with MSRDC/MREL. Generation data shall be provided in the form of continuous day around generation curve.
- ii. The plant outage data (due to solar plant or DISCOM grid) shall be maintained and submitted to MSRDC/MREL on monthly basis.
- iii. Maintain materials, spares, tools & tackles, logistics and accessories, which are necessary or usual for satisfactory and trouble-free operation and maintenance of the Solar Power Generating System(s).
- iv. The Operation and Maintenance shall be comprehensive. The maintenance service provider shall ensure project functioning of the Solar PV system as a whole and Power Evacuation System to the extent covered in the Contract. All preventive / routine maintenance and breakdown / corrective maintenance required for ensuring maximum uptime shall have to be provided. Accordingly, the Comprehensive Operation & Maintenance shall have two distinct components as described below:

a) Preventive / Routine Maintenance:

This shall be done by the Contractor regularly and shall include activities such as cleaning and checking the health of the Solar PV system, cleaning of module surface, tightening of all electrical connections, and any other activity including the associated civil works, wear and tear that may be required for proper functioning of the Solar PV system as a whole. Necessary maintenance activities, Preventive and Routine for transformers and associated switch gears and transmission line also shall be included.

b) Breakdown / Corrective maintenance:

Whenever a fault/failure/breakdown/malfunctioning occurs, the Contractor has to attend to rectify the fault & the fault must be rectified within the 48 hours from the time of occurrence of fault, failing which LD will be applicable in line with 'Liquidated Damages' depending upon nature of fault/failure/defect/breakdown/malfunctioning. The contractor must maintain all the records

pertaining to such faults/failure/breakdown/malfunctioning and necessary measures taken. The date of Comprehensive Operation & Maintenance Contract period shall begin on the date of Successful demonstration of guaranteed energy generation i.e. operational acceptance. However, operation of the Power Plant means operation of system as per bid and workmanship in order to keep the project trouble free covering the guarantee period. The contractor must demonstrate the committed CUF at the end of every year in accordance with commitment made in the Techno- Commercial Enclosures of the Bid.

v. Forecasting and Scheduling

- The Contractor shall comply with the MERC regulations on Forecasting & Scheduling, as applicable.
- The Contractor shall establish forecasting tools for submitting schedule and comply with MERC regulation.
- The Contractor shall provide SCADA. SCADA shall provide day ahead and week ahead forecasting and scheduling for power generation at the plant as per SLDC/Utility stipulations.

vi. Uptime of the Plant

All preventive / routine maintenance and breakdown / corrective maintenance required for ensuring maximum uptime shall have to be provided.

c) Required Documentation

Submission of following documents, drawings, data design, and engineering information to MREL or its authorized representative for review and approval in hard copy and soft copy from time to time as per project schedule.

- i. Contour map of the complete land area.
- ii. General arrangement, array layout diagrams and assembly drawings of all major equipment.
- iii. Design basis criteria along with relevant standards (list of standards and respective clause description only).
- iv. Design calculations and sheets with expected power loss at each stage and backup sheets, if any. Lightning arrestor with area coverage also to be provided.
- v. Detailed technical specifications of all the equipment.
- vi. Schematic diagram for entire electrical system including single line diagrams (SLD)

- vii. GTP & G.A. drawings for all types of structures/ components, 11/22 kV switchgears & other interfacing panels.
- viii. Relay setting charts.
- ix. Quality assurance plans for manufacturing (MQP), Standard Operating Procedures (SOP) and field activities (FQP).
- x. Detailed site EHS plan, fire safety & evacuation plan and disaster management plan.
- xi. Detailed risk assessment and mitigation plan.
- xii. Test reports (for type, acceptance, and routine tests).
- xiii. O&M Instruction's manuals and its drawings.
- xiv. As-built drawings / documents and deviation list from good for construction (GFC).
- xv. O&M plans, schedules and operational manuals for all equipment etc.
- xvi. Daily progress update.
- xvii. Weekly site work progress report with catch-up plan(s), as necessary to monitor actual timelines of the project during construction period along with the real time snap shots during the time of construction.
- xviii. Monthly O&M reports after commissioning of the project.

d) Statutory Approvals

- i. Obtaining statutory approvals /clearances/ compliances on behalf of the Authority from various Government Departments, not limited to, the following: -
 - Consent/ Approval from the MSEDCL for the evacuation scheme along with metering arrangement for evacuation of the power generated by the MW Solar Photovoltaic Grid Interactive Power Projects.
 - Permission from all other statutory and non-statutory bodies required for the Project.
 - Clearance from Department of Forest, Ecology and Environment, if required
 - Approval of the Electrical Inspectorate, Government of Maharashtra for commissioning of the transmission line and the solar project installed at the Project Site.
 - Start-up Power/ Auxiliary power/connection Agreement with MSEDCL.
 - SNA/MEDA registration certificate before commissioning of Project.
 - Permission to Commission from MSEDCL/SLDC.

- Certificate of Commissioning of the Solar Photovoltaic Grid Interactive Power Project issued by STU/MSEDCL/SLDC/MEDA. All other approval as and when, as necessary for setting up of a solar power plant including CEIG/ CEA, connectivity, power evacuation, railways, PTCC power line crossing, panchayat, NHAI etc. as per the suggested guidelines
- ii. All statutory approvals/permissions and/or No Objection Certificates (NoC) etc. from the DISCOM for obtaining connectivity at the substation as per Project Particulars provided above.
 - iii. All other statutory approvals and permissions and their respective compliances not mentioned specifically but are required to carry out hassle free Construction and O&M of the plant.
- e) Adequate and seamless insurance coverage during EPC and O&M period to mitigate all risks related to construction and O&M of the plant to indemnify the Authority.
- f) **Project Timelines:** The project would be developed in two parts.

Part I: Site Surveys, submission of drawings for approval, Minutes of Meet, project design document.

Part II: Implementation of Solar Power Project including O&M for 10 years.

i. Part I:

The Contractor shall submit the plan for carrying out site surveys within one week from the date of issuance of LoA. The contractor shall complete the site surveys of all the allotted substations/locations within ten (10) days from the date of issuance of LoA. The contractor shall submit the final array layout, Electrical Single Line Diagram (SLD), site survey reports, and project design document as per the timelines shown below:

S. No.	Stage	Reference from D
1	Submission of Site Survey Plan of all sites	LoA issuance date + 7 days
2	Site Survey by Contractor	LoA issuance date + 10 days
3	Signing of MoM, draft layout by MREL/MSRDC & Contractor	LoA issuance date + 15 days
4	Submission of Final Array layouts, SLD & Site survey reports by contractor to MREL/MSRDC	LoA issuance date + 28 days

ii. Part II:

The date of handover of substation site (s) to the contractor for implementation of Solar Power Project shall be treated as Zero date. The contractor shall submit the detailed execution plan (MS Projects/PERT/GANTT chart etc.) within one week (07 days) from the date of issuance of Notice to Proceed (NTP).

The timelines for completion of the EPC Works is 9 months from the Zero date.

Timelines for Scope of work in Days

S. No.	Stage	Reference from D
1	Issue of NTP	Zero Date (D)
2	The contractor shall submit the detailed execution plan (MS Projects/PERT/GANTT chart etc.)	D+15 days
3	Commencement of civil and allied works	D+90 days
4	Land Development + Boundary wall/fences +Transmission Line with bay feeder	D+120 days
5	Supply of major equipment like Solar PV modules, Modules Mounting Structures, Power Conditioning Units (PCU)/Inverter, Transformers, BoS etc.	D+150 days
6	Installation of all major equipment including MMS, Solar PV modules, Inverters / PCU, Transformers etc.	D+180 days
7	Complete installation, testing and Pre-commissioning of small Solar PV Power Plant/Solar Power Generating	D+250 days
8	Commissioning of Plant (SPGS) along with Completion of Facilities in line with Technical/Functional/Performance Requirement stated under this Tender Document.	D+270 days

g) Part Commissioning: Contractor is allowed to commission any of the allocated site(s). However, the contractor shall submit the final testing and commissioning reports for claiming the same.

h) Third Party Inspection Agency

A third party inspection agency (“Third Party Inspectors” or “TPI”) may be appointed by MREL, at its sole discretion, to conduct any kind of inspection regarding but not limited to procurement, fabrication, installation, hook-up and commissioning during the execution of the Project. The Contractor shall provide necessary access and coordination to conduct such inspections. The extent of third party inspectors’ involvement shall be finalized after mutual discussions between the Contractor and MREL.

i) Insurance

During the Contract period including O&M period, i.e., during Construction & O&M period, all insurance related expenses shall be borne by the Contractor. The goods supplied under the Contract shall be fully insured against the loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in such a manner that Owner shall not incur any financial loss, as long as the plant continues to remain under the custody of the Contractor. During O&M period also (after the Construction period is over), the insurances shall be in the scope of the Contractor.

In case of any loss or damage or pilferage or theft or fire accident or combination of the said incidents etc. under the coverage of insurance, the Contractor shall lodge the claim as per rules of insurance.

All other insurance like In – transit insurance (Marine/ Cargo/ others as applicable), Construction All Risk, Erection All Risk, Workmen Compensation, fire, third party liability, insurance against theft, Contractor's Equipment, machinery breakdown policy & his vehicles and others as required for the Construction and O&M of the Plant and to indemnify the Authority/ equipment/ material and resources shall be borne by the Contractor.

j) Quality Spares & Consumables

In order to ensure longevity and safety of the core equipment and optimum performance of the system the contractor shall use only genuine spares of high quality standards.

k) Testing Equipment, Tools and Tackles

The Contractor shall arrange for all the necessary testing equipment, tools and tackles for carrying out all the construction, operation and maintenance work covered under this contract. All the instruments are required to be calibrated from NABL accredited lab before put in use. The certificate of the same shall be submitted to MREL/MSRDC for verification.

l) Rejection of Materials

The MREL/MSRDC decision in regard to the quality of the material and workmanship will be final. The Contractor at its own cost and risk without any compensation shall immediately remove any material rejected by the MREL/MSRDC from the Site of work.

m) Labor Engagement

The Contractor shall be responsible to provide all wages and allied benefits to its labours engaged for execution of the project work and also to carry out Operation & Maintenance service. The Contractor shall remain liable to the authorities concerned for compliance of the respective existing rules and regulations of the government for this purpose and shall remain liable for any contravention thereof. The contractor is encouraged to use local manpower as per the local statutory (labour) requirement, if

any. The Contractor shall be responsible for making requisite arrange for security of the plant and allied structures.

n) Training of MREL's Personnel

On successful commissioning of the Plant, the Contractor shall provide training on Plant operations and maintenance to a team (Engineers and Technician/ Operators) as nominated by MREL/MSRDC, within first three months of Operation of the Plants.

o) Authorized Test Centers for test certificates

The Modules/transformers/ inverters/ cables and other Balance of system equipment deployed in the solar PV power Plant shall have valid test certificates for their qualification as per above specified IEC/ IS Standards by one of the NABL Accredited Test Centers in India. In case of module types/ equipment for which such Test facilities may not exist in India, test certificates from reputed ILAC Member body accredited Labs abroad (with proof of accreditation) will be acceptable.

p) Serviceability Level Agreement (SLA)

a) Contractor shall make efforts to maintain 100 % serviceability of complete Plant including all other associated infrastructure developed by the Contractor during execution of project as its scope of work.

b) Contractor shall produce monthly serviceability report for individual components of the plant & associated infrastructure to the MREL/MSRDC by 5th day of every month.

c) Contractor shall maintain a Complaint logbook, which shall include the timing of logging of complaint including unique Complaint number, time of closure of complaint & its Root Cause Analysis.

d) Such rectification work carried out by MREL/MSRDC doesn't exempt/relieve Contractor from its responsibility towards subsequent operation, maintenance, repair & replacement of such component/ infrastructure of the Plant or meeting the performance parameters of the Plant.

e) O&M Routine & Manpower: Contractor shall provide Preventive / Routine Maintenance schedule based on Original Equipment manufacturer and good engineering practices.

q) Transportation, Demurrage, Wharf age, etc.

Contractor is required under the Contract to transport the Goods to place of destination defined as Site. Transport to such place of destination in India including insurance, as shall be specified in the Contract, shall be arranged by the Contractor, and the related cost shall be included in the Contract Price.

Successful bidder, on whom letter of award is placed, shall ensure that all safety guidelines, rules and regulations, labour laws etc. are complied with and abided by the

Contractor. The Contractor shall indemnify MREL for any accident, injury met by its labour, employee or any other person working for the Contractor/agent/Sub-contractor of the Contractor. Any compensation sought by its labor, employee or any other person working for the Contractor/agent/Sub-contractor shall be paid by the Contractor as per settlement solely. MREL/MSRDC has no role to play in this matter.

r) Quality Considerations

- (a) Contractor will submit and get finalized detailed comprehensive Standard Field Quality Plan (SFQP) within 30 days from date of issue of the LOA/ for bought out items and items manufactured by them. The Standard Field Quality Plan shall include equipment inspection and testing to be followed for bought out items and items manufactured by Contractor. Accordingly, the Manufacturing Quality Plan shall be submitted broadly under following sub-heads:-
 - i. Raw material/Bought Out items and Components.
 - ii. In process inspection and test/checks to establish successful completion/ accomplishment of the process.
 - iii. Final tests/checks in accordance with relevant national/ international standards/specification.
- (b) The quantum of check for each and every inspection/test items shall be based on an established sampling method and the quantum of check indicated in the SFQP should be designed adequate quality protection
- (c) In case reference documents/acceptance norms are indicated as per Plant standards then the same shall be duly substantiated/properly explained by well-established and proven engineering practices. All submissions will be in English language only.
- (d) Contractor will allow MREL/MSRDC to carry out Quality/Audit/Quality surveillance on Contractor's and the Contractor's sub-vendor's work with reference to contractual obligations to ensure that the quality management practices/norms as detailed out in the Quality Manual are adhered to. To facilitate this activity, the Contractor shall keep MREL/MSRDC informed of all progress of work in this contract on monthly basis
- (e) Contractor will associate/fully witness in each inspection being carried out at their/their sub-vendor's works by MREL/MSRDC's authorized inspection engineer(s).
- (f) MREL/MSRDC shall also carry out quality audit and quality surveillance of the Contractor's systems, procedures and quality control activities. However, this shall not relieve the Contractor of any of its contractual responsibilities under the contract.

s) Performance and Functional Warranty / Guarantees

- (a) During the period of Warranty / Guarantee the Contractor shall remain liable to replace any defective parts, that become defective in the Plant, of its own manufacture or that of its sub-Contractors, under the conditions provided for by the Contract under and arising solely from faulty design, materials or workmanship, provided such defective parts are not repairable at Site to the extent that it operates at its full efficiency, reliability capacity.
- b) At the end of guarantee period, the Contractor's liability shall cease. In respect of goods not covered by clause (a) above, the MREL/MSRDC shall be entitled to the benefit of such guarantee given to the Contractor by the original equipment manufacturer of such goods.
- c) During the first year of assured performance demonstration and Operation & Maintenance thereafter, the Contractor shall be responsible for any defects in the work due to faulty workmanship or due to use of sub-standard materials in the work. Any defects in the work during the guarantee period shall therefore, be rectified by the Contractor without any extra cost to the MREL/MSRDC within a reasonable time as may be considered from the date of receipt of such intimation from the MREL/MSRDC failing which the MREL/MSRDC shall take up rectification work at the risk and cost of the Contractor.

5. DESIGN REQUIREMENTS AND TECHNICAL SPECIFICATIONS

5.1 Minimum Technical Specifications of Solar Power Plant

The main objective of the design philosophy is to construct the plant with in-built Quality and appropriate redundancy to achieve high availability and reliability with minimum maintenance efforts. In order to achieve this, the following principles shall be adopted while designing the system.

Adequate capacity of SPV modules, PCUs, Junction boxes etc. to ensure generation of power as per design estimates. This will be done by applying liberal de-rating factors for the array and recognizing the efficiency parameters of PCUs, transformers, conductor losses, system losses, site conditions etc. Strict compliance with approved and proven quality assurance (QA) systems and procedures during different stages of the project, starting from sizing, selection of make, shipment, storage (at site), during erection, testing and commissioning. System design shall have intelligent protection mechanism which may include very fast responsive microprocessor-based relays etc., so that any disturbance from the grid will not cause any damage to the equipment of the Solar Power Plant.

Shadow free plant layout to ensure minimum losses in generation during the daytime. Higher system voltage and lower current options to be followed to minimize ohmic losses. Selection of PCUs with proven reliability and minimum down time. Ready availability of requisite spares.

Careful logging of operational data / historical information from the Data Monitoring Systems, and periodical analysis of the same to identify any abnormal or slowly deteriorating conditions.

Each component offered by the Contractor shall be of established reliability. The Contractor may be allowed to install a higher solar PV array as per specifications. In case the Contractor wishes to install a higher DC side capacity, prior approval must be required from EIC (Engineer-in-Charge) for any additional higher DC side capacity. However, MSRDC reserves the right to accept or reject any additional DC side capacity. The minimum target reliability of each equipment shall be established by the Contractor considering its mean time between failures and mean time to restore, such that the availability of complete system is assured. Contractor's recommendation of the spares shall be on the basis of established reliability.

Contractor shall design the plant and equipment in order to have sustained life of 25 years with minimum maintenance efforts.

Contractor must mandatorily follow the latest codes/standards for all the material being used in the projects and other requirements as per notifications being published by Ministry of New and Renewable Energy (MNRE), Govt. of India from time to time.

1. PHOTOVOLTAIC MODULES

1.1 Technical Specs of Solar PV Modules

- a) All the components shall be in accordance with technical specifications given in relevant latest IS/IEC standards and MNRE ALMM. Use of PV modules with higher power output is preferred.
- b) PV module (s) containing crystalline silicon should be used.
- c) The efficiency of the PV modules should be 20% or higher.
- d) The Solar PV modules shall have a positive power tolerance.
- e) Power Output Warranty: PV modules must be warranted for output wattage, which should not be less than 90% at the end of 10 years and 80 % at the end of 25 years.
- f) Any damage/rejection should be made good or replaced immediately without any extra cost
- g) The PV modules shall be supplied with the suitable Aluminium frame. The terminal box on the module should have a provision for “Opening” for replacing the cable, if required.
- h) Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided
- i) The contractor shall carefully design & accommodate requisite numbers of the modules to achieve the rated power in his bid
- j) The certified Bill of Material (BOM) to be used in the PV Modules should be the same as used during the IEC certification of reference PV Module certified by renowned agency like TUV, UL, etc. The Contractor shall furnish a declaration by module manufacturer providing the certified module BOM and establishing the adherence to certified BOM in manufacturing of all PV modules supplied for the project.
- k) The Contractor shall obtain the approval of the Quality plan prior to manufacturing/ inspection call. The cells used for module making shall be free from all defects like edge chipping, breakages, printing defects, discoloration of top surface etc. Only Class A solar cells shall be used. The modules shall be uniformly laminated without any lamination defects.
- l) As per the Solar Photovoltaics, Systems, Devices and Components Goods (Requirements for Compulsory Registration) Order, 2017, PV Modules used in the grid connected solar power projects shall be registered with BIS and bear the

Standard Mark as notified by the Bureau of Indian Standards. Further, PV Modules should have been included in the ALMM list as per MNRE Approved Models and Manufacturers of Solar Photovoltaic Modules (Requirements for Compulsory Registration) Order, 2019.

- m) The PV modules used in the grid connected solar power projects must qualify to the latest edition of the following IEC or IS qualification test or standards.

Sr No.	Code/Standard	Description
1	IEC 61215	Crystalline silicon terrestrial photovoltaic (PV) modules – Design qualification and type approval
2	IEC 61701	Salt mist corrosion testing of photovoltaic (PV) modules
3	IEC 61853- Part 1/ IS 16170	Part 1 for Photovoltaic (PV) module performance testing and energy rating. Irradiance and temperature performance measurements and power rating
4	IEC 62716	Photovoltaic (PV) Modules – Ammonia (NH ₃) Corrosion Testing
5	IEC 61730 Photovoltaic (PV) Module Safety Qualification –	Modules must qualify to Part 1: Requirements for Construction, Part 2: Requirements for Testing
6	IEC 62804	test methods for detection of PID (potential-induced degradation)
7	IEC 60068	Environmental testing

- n) Supplier to submit all the above requisite latest test certificates of solar PV modules at the time of submission of the bid.
- o) Four bus bar or better technology solar PV modules to be used.
- p) Contractor must submit valid Construction Data Form (CDF) in support of Bill of Material (BoM).

1.2 Identification and Traceability

Each PV module used in any solar power Project must use a RF identification tag. The following information must be mentioned in the RFID used on each module (This can be inside or outside the laminate, but must be able to with stand harsh environmental conditions)

- i. Name of the manufacturer of PV Module
- ii. Name of the Manufacturer of Solar cells
- iii. Month and year of the manufacture (separately for solar cells and module)

- iv. Country of origin (separately for solar cells and module)
- v. I-V curve for the module at Standard Test Condition (1000 W/m², AM 1.5, 250C)
- vi. Wattage, I_m, V_m and FF for the module
- vii. Unique Serial No. and Model No. of the module
- viii. Date and year of obtaining IEC PV module qualification certificate
- ix. Name of the test lab issuing IEC certificate
- x. Other relevant information on traceability of solar cells and module as per ISO-9000

1.3 Required Testing

a) Factory Acceptance Tests (FAT)

- i. The Quality Plan/ test program for the Factory Acceptance Tests (FAT) shall be submitted for approval at least 4 weeks prior to commencing tests. The test report shall be submitted prior to shipment of material.
- ii. The tendering authority reserves the right to visit the PV module factory at any time during manufacturing process to assess quality and production scheduling status.

1.4 Safe Disposal of Solar PV Modules

The Contractor shall ensure that all Solar PV modules from their plant after their end of life' (when they become defective/ non-operational/ non-repairable) are disposed in accordance with the "e-waste (Management and Handling) Rules, 2011" notified by the Government and as revised and amended from time to time.

1.5 Authorized Test Centres

The PV modules deployed shall have valid test certificates for their qualification as per above specified IEC/ BIS Standards by one of the NABL Accredited Test Centres in India. In case of module types/ equipment for which such Test facilities may not exist in India, test certificates from reputed ILAC Member Labs abroad will be acceptable.

1.6 Material Warranty

The manufacturer should warrant the Solar Module(s) to be free from the defects and/or failures specified below for entire contract duration i.e. 10 years from the date of physical completion.

- a) Defects and/or failures due to manufacturing
- b) Defects and/or failures due to quality of materials
- c) Nonconformity to specifications due to faulty manufacturing If the solar Module(s) fails to conform to this warranty, the Contractor shall repair or replace the solar module(s), at the Authority's sole option or as per the instruction of the Engineer-in-Charge (EIC) and the cost shall be borne by the Contractor

- d) It may be noted that the EPC contractor who has been awarded the order against this RFP, shall take the necessary warranty from their vendor as a measure of compliance before executing the project. Non-submission of such warranty before supplies may result in cancellation of the order. Coordination with module manufacturer for any repair/replacement under warranty clause shall be handled by Contractor.

1.7 Performance Warranty

- a) All photovoltaic modules shall carry a performance warranty of >90% during the first 10 years, and >80% during the next 15 years. Further, module shall at least have performance warranty of > 97% during the first year of installation. Degradation of PV module for first year shall be limited to 3% and shall not be more than 0.7% in any subsequent year. In case the module performance degrades beyond the warranted values, the EPC contractor will have to supply additional capacity of solar PV modules making up for the lost capacity due to additional degradation at its own cost.
- b) The material and performance warranty must be backed by suitable third-party insurance.

1.8 Transportation, Handling, Storage and Installation

- (i) Transportation, handling, storage and installation of modules shall be in accordance with the manufacturer manual so as not to breach warranty conditions. The Standard Operating Procedure (SOP) for the same shall be shared by the Contractor prior to dispatch.
- (ii) It is required to construct a temporary platform (graded) while keeping the modules at least above the highest flood level. If the contractor scheduled/ planned to mount the modules immediately after the receipt at site, then the module shall be kept in common storage area with proper arrangement.
- (iii) The stacked modules, in any case, shall be stacked as per the manufacturer's recommendation only and shall be covered with tarpaulin sheet.

1.9 Inspection

MREL reserves the right to test the Solar PV Modules before the dispatch to confirm their standards to the contract specifications. If required, the pre dispatch testing of the Solar PV Modules shall be done at the manufacture's place. These tested parameters shall match the IEC/ISI/MNRE/BEE standards of tender. If components of the system are not as per the standards, entire lot has to be replaced with new components which shall confirm to the standards mentioned in the tender at Supplier's cost. MREL, reserves the right to verify flash test reports of Solar PV modules.

2. PV ARRAY CONFIGURATIONS

The Solar array shall be configured in multiple numbers of sub-arrays, providing optimum DC power to auditable number of sub arrays. The Contractor shall submit their own design indicating configuration of PCU and respective sub arrays and associated bill of material.

- a) UV resistant Cable-ties (suitable for outdoor application shall be used to hold and guide the cables/wires from the modules to junction boxes or inverters. All the cables were aesthetically tied to module mounting structure.
- b) In case the string monitoring unit (SMU) is mounted on the module mounting structure, Contractor to take into consideration of the load thus added on the MMS. Accordingly, suitable supporting members for mounting the SMU must be designed and supplied. Separate structure for mounting of SMU can also be proposed.
- c) Every major Component of the Plant shall be suitably named/ numbered & marked for ease of traceability, identification and maintenance.

3. STRING MONITORING UNIT (SMU)

All SMUs shall be equipped with appropriate functionality, safety (including fuses, grounding, contacts etc.) and protection.

The terminals shall be connected to copper bus-bar arrangement of proper sizes to be provided. The junction boxes will have suitable cable entry points fitted with cable glands of appropriate sizes for both incoming and out going cables. Suitable markings shall be provided on the bus-bars for easy identification and weather resistant cable ferrules shall be fitted at the cable termination points for identification.

The standards and codes:

Standard/Code	Description
IEC 60529	Enclosure Ingress Protection
IEC 62262	Enclosure Impact Protection
IEC 60296	Fuse
IEC 61643-12	Surge Protection Device
IEC 62852 or EN 50521	Solar cable connector

The Junction Boxes shall have suitable arrangement for the followings

- a) Provide arrangement for disconnection for each of the groups/incomers.
 - Provide a test point for each sub-group for quick fault location and to provide group array isolation.
 - Suitable space for work ability and natural cooling.

- b) The junction boxes shall be dust, vermin, and waterproof and made of thermoplastic/ metallic in compliance with IEC 62208, which shall be sunlight/ UV resistive as well as fire retardant & must have minimum protection to IP65 (Outdoor) and Protection Class II.
- c) Array Junction Box will also have suitable surge protection. In addition, over voltage protection shall be provided between positive and negative conductor and earth ground such as Type-II Surge Protection Device (SPD). The maintenance free earthing shall be done as per the relevant standards.
- d) Array Junction Box should have adequate ratings of solar DC fuses & isolating miniature circuit breakers at both the terminals i.e. +ve as well as –ve, provided in recommendation with the inverter manufacturer. The fuses should be so designed that it should protect the modules from the reverse current overload.
- e) At outgoing side DC Disconnect Switch of suitable capacity shall be provided.
- f) Contractor shall submit all test reports/test certificates and compliance certificates during Detailed Design Engineering & before installation at site.
- g) Suitable communication interface shall be provided to communicate the data to SCADA. The following parameters shall be measured/ monitored and made available at SCADA.
 - i. String current
 - ii. Bus voltage
 - iii. Output current
 - iv. Cabinet temperature
 - v. DC disconnect switch ON/OFF status
 - vi. SPD operating status
- h) The SMU unit shall be warranted for minimum of 5 (five) years against all material/manufacturing defects and workmanship.

4. POWER CONDITIONING UNIT (PCU)

- a) Power Conditioning Unit (PCU)/ Inverter shall consist of an electronic inverter along with associated control, protection and data logging devices.
- b) Central inverter/ String Inverter of appropriate capacity may be used.
- c) The rated power/name plate capacity of the inverters shall be the AC output of the inverter at 50°C.

- d) All PCUs should consist of associated control, protection and data logging devices and remote monitoring hardware and compatible with software used for string level monitoring.
- e) Dimension, weight, cooling arrangement etc. of the PCU shall be indicated by the Bidder in the offer. Type (in- door & out-door) of installation also to be indicated.
- f) Contractor has to provide sufficient information about the inverter to be installed at the project site to the satisfaction of the MREL/DISCOM before placing the final order for PCUs/Inverters. Service center of the PCU manufacturer must be in India.
- g) The minimum European efficiency of the inverter shall be 98% load as per IEC 61683 standard for measuring efficiency. The Bidder/ Contractor shall specify the conversion efficiency of different loads i.e. 25%, 50%, 75% and 100% in its offer. The Bidder/ Contractor should specify the overload capacity in the bid.
- h) The inverters shall have minimum protection to IP 65(Outdoor)/IP 21(indoor) and Protection Class II.
- i) Nuts & bolts and the PCU enclosure shall have to be adequately protected taking into consideration the atmosphere and weather prevailing in the area.
- j) Grid Connectivity: Relevant CERC regulations and grid code as amended and revised from time to time shall be complied. The system shall incorporate a unidirectional inverter and should be designed to supply the AC power to the grid at load end. The power conditioning unit shall adjust the voltage & frequency levels to suit the Grid.
- k) All three phases shall be supervised with respect to rise/fall in programmable threshold values of frequency.
- l) The inverter output shall always follow the grid in terms of voltage and frequency. This shall be achieved by sensing the grid voltage and phase and feeding this information to the feedback loop of the inverter. Thus control variable then controls the output voltage and frequency of the inverter, so that inverter is always synchronized with the grid.

4.1 Operational Requirements for Inverter/ PCU

- a) The PCU must have the feature to work in tandem with other similar PCU's and be able to be successively switched "ON" and "OFF" automatically based on solar radiation variations during the day. Inverters must operate in synergy and intelligently to optimize the generation at all times with minimum losses.
- b) The PCU shall be capable of controlling power factor dynamically.

- c) Maximum power point tracker (MPPT) shall be integrated in the power conditioner unit to maximize energy drawn from the Solar PV array. The MPPT should be microprocessor based to minimize power losses. The details of working mechanism of MPPT shall be mentioned by the Bidder in its offer. The MPPT unit shall conform to IEC62093 for design qualification.
- d) The system shall automatically “wake up” in the morning and begin to export power provided there is sufficient solar energy and the grid voltage and frequency is in range.
- e) Basic System Operation (Full Auto Mode): The control system shall continuously monitor the output of the solar power Plant until pre-set value is exceeded & that value to be indicated.
- f) PCU shall have provisions/features to allow interfacing with monitoring software and hardware devices.

4.2 Protection against faults for PCU

The PCU shall include appropriate self-protective and self-diagnostic feature to protect itself and the PV array from damage in the event of PCU component failure or from parameters beyond the PCU’s safe operating range due to internal or external causes. The self-protective features shall not allow signals from the PCU front panel to cause the PCU to be operated in a manner which may be unsafe or damaging.

Faults due to malfunctioning within the PCU, including commutation failure, shall be cleared by the PCU protective devices. In addition, it shall have following minimum protection against various possible faults.

- i. Grounding Leakage Faults: The PCU shall have the required protection arrangements against grounding leakage faults.
- ii. Over Voltage & Current: In addition, over voltage protection shall be provided between positive and negative conductor and earth ground such as Surge Protection Devices (SPD).
- iii. Galvanic Isolation: The PCU inverter shall have provision for galvanic isolation with external transformer, if required.
- iv. Anti-islanding (Protection against Islanding of grid): The PCU shall have anti-islanding protection. (IEEE 1547/UL 1741/ equivalent BIS standard)
- v. Unequal Phases: The system shall tend to balance unequal phase voltage (with 3- phase systems).

- vi. **Reactive Power:** The output power factor of the PCU should be of suitable range to supply or sink reactive power. The PCU shall have internal protection arrangement against any sustained fault in the feeder line and against lightning in the feeder line.
- vii. **Isolation:** The PCU shall have provision for input & output isolation. Each solid-state electronic device shall have to be protected to ensure long life as well as smooth functioning of the PCU.
- viii. PCU shall have arrangement for adjusting DC input current and should trip against sustainable fault downstream and shall not start till the fault is rectified.
- ix. Each solid state electronic device shall have to be protected to ensure long life of the inverter as well as smooth functioning of the inverter.
- x. All inverters/ PCUs shall be three phase using static solid state components. DC lines shall have suitably rated isolators to allow safe start up and shut down of the system. Fuses & Circuit breakers used in the DC lines must be rated suitably.

4.3 Standards & Compliances (PCU)

PCU shall conform to the following standards and appropriately certified by the labs:

IEC 61683	Photovoltaic systems - Power conditioners - Procedure for measuring efficiency
EN 50530:2010 with 2013 Amendment 1	Overall efficiency of grid connected photovoltaic inverters
IEC 62109-1 Ed. 1	Safety of power converters for use in photovoltaic power systems - Part 1: General requirements
IEC 62109-2 Ed. 1	Safety of power converters for use in photovoltaic power systems - Part 2: Particular requirements for inverters
IEC 61000-6-2 Ed. 2	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments, Harmonics etc.
IEC 61000-6-4 Ed. 2.1	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments
IEC 62116 Ed. 2	Utility-interconnected photovoltaic inverters - Test procedure of islanding prevention measures

IEEE 1547:2003 with 2014 Amendment 1	IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems
IEC 60068-2-1:2007	Environmental testing - Part 2-1: Tests - Test A: Cold
IEC 60068-2-2:2007	Environmental testing - Part 2-2: Tests - Test B: Dry heat
IEC 60068-2-14:2009	Environmental testing - Part 2-14: Tests - Test N: Change of Temperature
IEC 60068-2-30:2005	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)
CEA Technical Standards for Connectivity to the Grid Regulations 2007 with 2013 Amendment or as amended from time to time.	

The Bidder/Contractor should elect the inverter as per its own system design so as to optimize the power output, however selected inverter must comply with the Technical/functional requirement of Plant as per this Tender Document.

4.4 Desired Technical requirements of PCU

Parameter	Specification
Rated AC power	As per design
Maximum input voltage	1000/1500 V
Rated AC output voltage	As per design
Tolerance on rated AC output voltage	+/-10%
Rated frequency	50 Hz
Operating frequency range	47.5 Hz to 52 Hz
Power factor control range	0.9 lag to 0.9 lead
European efficiency	Minimum 98%
Maximum loss in Sleep Mode	0.05% of rated AC power
Total Harmonic Distortion	Less than 3% at 100% load
Degree of protection	IP 20 (Indoor)/IP 54 (Outdoor)

- a) The rated/ name plate AC capacity of the PCU shall be AC power output of the PCU at 50°C.

- b) Maximum power point tracker (MPPT) shall be integrated in the PCU to maximize energy drawn from the Solar PV array. The MPPT voltage window shall be sufficient enough to accommodate the output voltage of the PV array at extreme temperatures prevailing at site.
- c) The PCU output shall always follow the grid in terms of voltage and frequency. The operating voltage and frequency range of the PCU shall be sufficient enough to accommodate the allowable grid voltage and frequency variations.
- d) Construction:
 - i. Power Conditioning Unit (PCU) shall consist of an electronic three phase inverter along with associated control, protection, filtering, measurement and data logging devices.
 - ii. Every DC input terminal of PCU shall be provided with fuse of appropriate rating. The combined DC feeder shall have suitably rated isolators for safe start up and shut down of the system.
 - iii. Type-II surge protective device (SPD) conforming to IEC 61643-12 shall be connected between positive/ negative bus and earth.
 - iv. In case external power supply is required, standalone UPS shall be used to meet auxiliary power requirement of PCU. It shall have a backup storage capacity of 2 hours.
 - v. Circuit Breaker of appropriate voltage and current rating shall be provided at the output to isolate the PCU from grid in case of faults.
 - vi. The PCU shall be tropicalized and the design shall be compatible with conditions prevailing at site. Suitable number of exhaust fan with proper ducting shall be provided for cooling keeping in mind the extreme climatic condition of the site as per the recommendations of OEM to achieve desired performance and life expectancy.
 - vii. All the conducting parts of the PCU that are not intended to carry current shall be bonded together and connected to dedicated earth pits through protective conductor of appropriate size. DC negative terminal shall be grounded.
 - viii. Dedicated communication interface shall be provided to monitor the PCU from SCADA.
 - ix. PCU front panel shall be provided with LCD/ LED to display all the relevant parameters related to PCU operation and fault conditions. It shall include, but not limited to, the following parameters.
 - (i) DC input power

- (ii) DC input voltage
- (iii) DC input current
- (iv) AC output power
- (v) AC output voltage (all the 3 phases and line)
- (vi) AC output current (all the 3 phases and line)
- (vii) Frequency
- (viii) Power Factor

4.5 Operating Modes

Operating modes of PCU shall include, but not limited to, the following modes. These operating modes and conditions for transition are indicative only. The Contractor shall provide the detailed flow chart indicating the various operating modes and conditions for transition during detailed engineering.

4.6 Standby Mode

The PCU shall continuously monitor the input DC voltage and remain on Standby Mode until it reaches the pre-set value.

4.7 MPPT Mode

When the input DC voltage is above the pre-set value and AC grid connection conditions are fulfilled, the PCU shall enter into MPPT mode.

4.8 Sleep Mode

When the AC output power/DC input voltage decreases below the pre-set value for pre-set time delay, the PCU shall switch into Sleep Mode.

4.9 Protection Features

The PCU shall include appropriate self-protective and self-diagnostic feature to protect itself and the PV array from damage in the event of PCU component failure or from parameters beyond the PCU's safe operating range due to internal or external causes. The self-protective features shall not allow signals from the PCU front panel to cause the PCU to be operated in a manner which may be unsafe or damaging. Faults due to malfunctioning within the PCU, including commutation failure, shall be cleared by the PCU protective devices.

- a) The PCU shall provide protection against the following type of faults, among others.
 - i. DC/AC over current
 - ii. DC/AC over voltage
 - iii. DC reverse polarity

- iv. DC earth fault
 - v. AC under voltage
 - vi. AC under frequency/over frequency
 - vii. Islanding
 - viii. Over temperature
 - ix. Lightning surges
 - x. Cooling fan failure
 - xi. Auxiliary supply failure
 - xii. Grid Support Functions
 - xiii. Active power regulation
- b) The PCU shall be able to limit the active power exported to the grid based on the set point provided through PCU front control panel. The PCU shall also be able to automatically limit the active power after an increase in grid frequency above a pre-set value. The ramp rate shall be adjustable during operation and start-up after fault. The applicability of the requirement shall be as per CEA regulation and compliance.
- c) Reactive power control
- The PCU shall be able to inject /absorb reactive power to/ from the grid based on the set point provided through PCU front control panel. The same shall be performed automatically with adjustable ramp rate based on dynamic changes in grid voltage or reactive power reference.
- d) Voltage Ride Through
- The PCU shall remain connected to the grid during temporary dip or rise in grid voltage as per the LVRT and HVRT requirements of CEA Technical Standards for Connectivity to the Grid Regulations. The PCU shall also be able to inject reactive power during the period of voltage dip.

4.10 Test Certificates/Reports

All the test certificates as per the standards mentioned above shall be submitted for approval. The tests should have been conducted at a test laboratory compliant with ISO 17025 for testing and calibration and accredited by an ILAC member signatory. Laboratory accreditation certificate or weblink along with scope of accreditation shall also be submitted. It is the responsibility of the Contractor to substantiate the compliance for CEA Regulations using test reports.

4.11 Warranty

The complete Power Conditioning Unit shall be warranted for minimum of 5 (five) years against all material/ manufacturing defects and workmanship.

4.12 Routine Tests

Routine tests and acceptance tests shall be as per the Quality Assurance Plan (QAP) approved by the Employer.

5. ARRAY STRUCTURE/MODULE MOUNTING STRUCTURE

- a) Hot dip galvanized MS mounting structures may be used for mounting the modules/ panels/ arrays. Each structure should have angle of inclination as per the site conditions to take maximum insolation. However, to accommodate more capacity the angle inclination may be reduced until the guaranteed CUF can be met. The Mounting structure shall be so designed to withstand the speed for the wind zone of the location as per IS875 where a PV system is proposed to be installed. 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 MREL. A simulation report for solar PV yield generation should also be submitted to the MREL to validate the attainment of guaranteed CUF.
- b) The module mounting structure (MMS) should be designed for a design life of 25 years.
- c) The ground mounting structure design must follow the existing land profile.
- 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 electrolytic alloy compatible with the materials used in the module frame, its fasteners, nuts and bolts
- f) 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
- g) Modules shall be clamped & bolted with the structure properly. The material of clamps shall be Anodized Al / Stainless Steel. Clamp/bolt shall use EPDM rubber and must be designed in such a way so as not to cast any shadow on the active part of a module. In case bolts are used, Spring Washers shall be used bolt head end and EPDM rubber shall be used in between Module & purlin.
- h) The structure should not impact the safety, state and waterproofing of the project site. The structure should not block the rainwater drainage of the project site. The

contractor should take adequate measures such as chemical sealing along with waterproofing of foundations. Any damage to the project site or any impact on drainage or waterproofing will be rectified by the contractor at its own cost.

- i) The MMS must be designed considering 1.5 times factor of safety
- j) The MMS design must be aesthetically pleasing along with technical suitability, and the same has to be approved by MREL. Few possible sample designs are appended to the Appendix appended at the last.
- k) Cutting, Welding, drilling etc. at site is not allowed for MMS. Contractor shall carry out all correction in structure (if required) at his works.
- l) All the cables were aesthetically tied to module mounting structure.
- m) Suitable provision for mounting DWC pipes for routing DC cable from Array to Inverter must be provided (Separate DWC Pipe for Positive and Negative DC Cables as mentioned elsewhere in this tender document)
- n) The Contractor shall provide pre-dispatch inspection call to MREL for inspection at manufacturer works, as per MREL approved drawings, for all fabricated items such as steel structure members, galvanization process etc. Prior to inviting MREL for pre - dispatch inspection, vendor shall submit detailed quality assurance plan (QAP) for MREL approval. QAP shall include type tests, routine tests, factory acceptance tests, sampling plan, applicable standards etc. After the inspection, complete set of test reports shall be submitted. For all bought out items, test certificates as per relevant standards shall be submitted. order to install on rooftop on buildings all the rooftop must be refixed wherever required
- o) Expenses if any including the air fare and stay shall be borne by the contractor. The Contractor shall intimate the same before 15 days of dispatch of the item.
- p) The procedure shall be applicable not only for the fabricated item but also for PV panel, cables and inverters as well
- q) The Successful Bidder/ Contractor shall submit the detailed foundation & structural design basis and the list of reference standards, in this Bid, duly certified by a Chartered Structural Engineer having adequate successful experience in similar works.
- r) The contractor shall submit the detailed design calculations and drawings for MMS structure, bill of materials and their specifications/ standards to the MREL/ DISCOM for approval within 30 days from issue of LOA/ NTP before start for fabrication work.

- s) Contractor must submit the complete quality documents i.e. test certificates for all tests conducted starting from raw material stage, in process, final testing w.r.t structure.

6. FOUNDATIONS

- a) Contractor shall design all foundations for buildings, equipment, Switch yard structures, Transformer, MMS & other structures as per relevant BIS standards and recommendations of Geotechnical investigation report.
- b) In case the contractor proposes to provide pile foundation for support of module mounting structure (MMS); the type, dia. and length of pile shall be as per recommendations of Geotechnical Investigation Report corresponding to prevalent soil characteristics at site.
- c) In case collapse of foundation strata during drilling of the pile bore, removal steel liner shall be used to maintain design depth and diameter of the pile for proper concreting.
- d) The design pile capacity under direct compression, lateral load and pull out shall be verified through field trials by conducting initial load tests on test piles to be specially cast for this purpose. The tests shall conform to IS 2911 – Part 4. The no. and location of such tests shall be as discussed and finalized with Engineer-in-charge. However, min. 3 no. of Tests shall be conducted under each category.
- e) Contractor shall also carry out routine tests on 0.5 % of the total no. of working piles as per provisions of IS: 2911 – Part 4.
- f) Contractor must take into account that the site is prepared by filling of sand from coastal area.

7. CIVIL AND CONCRETE WORKS

- a) All RCC works shall be with design mix as per IS 456 and the materials used viz. Cement, coarse & fine aggregate, Reinforcement steel etc. shall conform to relevant BIS standards.
- b) The minimum grade of RCC shall be M25 except for underground (UG) water tank where the grade of concrete shall be min. M30. PCC shall be of min. grade M10 (equivalent nominal Mix – 1:3:6) unless otherwise specified.
- c) Reinforcement steel shall be of high strength TMT bars of grade Fe500 D conforming to IS: 1786. Ductile detailing in accordance with IS: 13920 shall be adopted for superstructure and sub-structure of all RCC buildings and structures.

- d) For grouting works anti shrink ready mix grout of approved make or cement mortar (CM) grout with non-shrink additive shall be used. The grout shall be high strength grout having min. characteristic strength of 30 N/ mm² at 28 days.

8. CABLES

8.1 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°C to $+80^{\circ}\text{C}$
- c) Voltage rating 660/1000/1500 V
- d) All cables and connectors used for installation of the solar field must be of solar grade which can withstand harsh environment conditions including high temperatures, UV radiation, rain, humidity, dirt, oil, attack by rodents, moss and microbes for 25 years and voltages as per latest IEC standards. (Note: DC cables being used in solar field should comply with the EN50618 / TUV 2PfG 1169/09.07 or equivalent IS).
- e) Multi Strand, Annealed high conductivity copper conductor PVC type 'A' pressure extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armored 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.
- f) 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. The manufacturer has to use electron beam cross-linking process.
- g) 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. The insulating material XLPE should be cured by dry curing process.
- h) The insulating material shall be of very high degree of purity. The manufacturer should provide the certification that the XLPE/XLPO has proven track record. The cross linked polyethylene insulation should be such as to retard the development and growth of water trees in the compound.

- 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 color
- 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) Proper laying of cables have to be ensured in appropriate GI Cable trays, DWC conduit pipes as per site requirement and cables should be 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. The cables should be laid in a manner that it should not obstruct access, maintenance or impact the aesthetics of the site.
- m) “MREL” needs to be embossed on cables at every one meter
- n) The DC cables from the SPV module array shall run through a UV-stabilized DWC conduit pipe of adequate diameter with a minimum wall thickness of 1.5 mm and meet IEC 60227/IS 694, IEC 60502/IS1554 standards.
- o) All cables and conduit pipes shall be clamped to the structure top, walls and ceilings with thermo-plastic clamps at intervals not exceeding 50 cm.
- p) The minimum DC cable size shall be 4.0 mm² copper; the minimum AC cable size shall be 4.0 mm² copper. In three phase systems, the size of the neutral wire size shall be equal to the size of the phase wires
- q) Positive and Negative DC Cable Shall run through separate DWC conduit pipe only (From SPV Module to Inverter). This is to reduce possible fire risk, this is mandatory. DWC conduits should be colour coded accordingly.
- r) Cables with kinks, straightened kinks, or any other apparent defects should not be installed.
- s) While the shortest practicable route should be preferred, the cable route shall generally be aligned with fixed developments such as side walls, roads, foot paths etc. with proper offsets so that future maintenance, identification etc. are rendered easy.
- t) Cable route shall be planned away from drains and near the property, especially in the case of LV/MV cables, subject to any special local requirements that may have to be necessarily complied with.

- u) Power and communication cables shall as far as possible cross each other at right angles. The horizontal and vertical clearances between them shall not be less than 60cm.
- v) There should be no joints in cables between Inverters and LT Panel.
- w) Cables of each size and type should be drawn from a single lot.

8.2 HT Cables:

- a) All the HV cables shall be Earthed grade (as per system requirement), multi-stranded Al conductor, XLPE insulated, inner/ outer extruded PVC sheath ST2, galvanized steel flat strip armoured cables.
- b) For the HT cables, the system fault current shall be calculated and the minimum fault clearing time shall be considered as 1 sec.
- c) Appropriate de-rating factors as per cable manufacturer's catalogue and enlisted below shall be considered for sizing the cable.
- d) HT Cable laying shall be directly buried and shall be laid as per IS: 1255. For HT cables Heat Shrinkable termination kits shall be used for outdoor & indoor terminations/ straight through joints. M-seal push on type terminations may be used for indoor terminations.
- e) Testing of Cables shall be as per relevant IS.
- f) Applicable Standards: IS 8130-1984, IS:7098 (Part 2)-2011, IS:5831-1984, IS:3975-1988, IS:0462 (Part-1)-1983, IEC 60502-2, ANSI/ICEA S-94649:2004

8.3 All the cables required for the plant shall be provided by the contractor. All cable schedules/ layout drawings shall be approved prior to installation

8.4 In cases where horizontal drilling is required for laying cables (For e.g.: Road crossing) upto 200m, the contractor will need to undertake the same at its own cost.

8.5 The total energy loss for the entire solar PV system due to cabling shall not exceed 2.5%.

8.6 The size of each type of cable selected shall be based on minimum voltage drop, however, the maximum drop in each segment shall be limited to 2%. The contractor should furnish cable schedule and loss calculations during the design stage validating the same.

9. INVERTER TRANSFORMER

9.1 Standards and Codes

Inverter transformer, wherever applicable, shall comply with the latest edition of the following standards and codes including amendments

Standard	Description
IS:2026, IEC:60076	Specification of Power Transformers
IS:2099, IEC:60137	Bushings for alternate voltage above 1000 V
IS: 335, IEC 60296	Insulating oil
IS: 3639	Fittings and Accessories for Power Transformers

9.2 Technical Requirements

Parameters	Inverter Transformer
VA Rating	As per system requirement and SLD
Voltage Ratio	11 kV/ Inverter output voltage
Duty, Service & Application	Continuous Solar Inverter application and converter Duty (Outdoor)
Winding	As per system design requirement
Frequency	50 HZ
Nos. of Phase	3
Vector Group & Neutral Earthing	As per system/inverter manufacturer requirement and SLD
Cooling	ONAN
Tap Changer	OCTC, No. of steps shall be as per the SLD and system requirement
Impedance at 75°C	As per Inverter Manufacturer requirement and SLD
Permissible Temperature rise over an ambient of 50°C (irrespective of tap)	
Top Oil	50°C

Winding	55°C
SC withstand time (thermal)	2 second
Termination	As per system requirement and SLD
Bushing rating, Insulation class (Winding & bushing)	HV side - 12 kV porcelain bushings LV side – 1.1 kV porcelain bushings
Noise level	As per NEMA TR-1
Loading Capability	Continuous operation at rated MVA on any tap with voltage variation of +/-3%, also transformer shall be capable of being loaded in accordance with IEC 60076-7
Flux density	Not to exceed 1.9 Wb/sq.m. at any tap position with combined frequency and voltage variation from rated V/f ratio by 10% corresponding to the tap. Transformer shall also withstand following over fluxing conditions due to combined voltage and frequency fluctuations: a) 110% for continuous rating b) 125% for at least one minute c) 140% for at least five seconds. Bidder shall furnish over fluxing characteristic up to 150%
Air Clearance	As per CBIP
* Single Line Diagram (SLD) will be finalized during detailed engineering.	

9.3 Construction

- a) The transformer shall be provided with conventional single compartment conservator with prismatic toughened glass oil gauge. The top of the conservator shall be connected to the atmosphere through indicating type cobalt free silica gel breather with transparent enclosure. Silica gel shall be isolated from atmosphere by an oil seal. Inverter transformers shall be provided with Magnetic Oil Gauge (MOG) with low oil level alarm contact.
- b) It is the responsibility of the Contractor to ensure that the inverter transformer comply with all the requirements of inverter provided by the inverter manufacturer.

- c) Inverter Transformer shall be designed for at least 5% total harmonic distortion (THD) to withstand distortion generated by the inverter as well as possible outside harmonics from the network.
- d) The transformer shall be suitable for continuous operation with a frequency variation of $\pm 2.5\%$ from nominal frequency of 50 Hz without exceeding the specified temperature rise.
- e) Inverter Transformer shall have shield winding between LV & HV windings. Each LV winding must be capable of handling non-sinusoidal voltage with voltage gradient as specified by the inverter manufacturer. Also, shield winding shall be taken out from tank through shield bushing and the same shall be brought down to the bottom of the tank using copper flat and support insulator for independent grounding.
- f) Neutral bushing of Inverter duty transformer shall be brought outside the tank for the testing purpose. It shall be covered with MS sheet and a sticker "For testing purpose only. Do not earth". Neutral bushing of auxiliary transformer shall be brought outside the tank for earthing.
- g) Transformer shall have 150 mm dial type Oil Temperature Indicator (OTI) and Winding Temperature Indicator (WTI) with alarm and trip contacts. All indicators shall have accuracy class of ± 2 deg. For inverter transformers, WTI shall be provided for all the windings.
- h) The radiators shall be detachable type, mounted on the tank with shut off valve at each point of connection to the tank, lifts, along with drain plug/ valve at the bottom and air release plug at the top.
- i) Marshalling Box shall be of sheet steel, dust and vermin proof provided with proper lighting and thermostatically controlled space heaters. The degree of protection shall be IP 55. Marshalling Box of all transformers shall be preferably Tank Mounted. One dummy terminal block in between each trip wire terminal shall be provided. At least 10% spare terminals shall be provided on each panel. The gasket used shall be of neoprene rubber. Wiring scheme (TB details) shall be engraved in a stainless steel plate with viewable font size and the same shall be fixed inside the Marshalling Box door.
- j) Suitable relay, double float type with alarm and trip contacts, along with suitable gas collecting arrangement shall be provided. RTCC panel, as per design, to be provided.
- k) Inverter transformer shall be provided with spring operated Pressure Relief Device (with trip contacts) with suitable discharge arrangement for oil.

- l) Filter valve at top the tank and drain cum sampling valve at bottom of the tank shall be provided.
- m) All external surface of the transformer shall be painted with two coats of epoxy based paint of colour shade RAL 7032. Internal surface of cable boxes and marshalling box shall be painted with epoxy enamel white paint. The minimum dry film thickness (DFT) shall be 100 microns.
- n) LV and HV cable box shall be provided with disconnecting chamber to facilitate the movement of transformer without disturbing cable box and termination.
- o) Air release plug, bi-directional wheel/skids, cover lifting eyes, transformer lifting lugs, jacking pads, towing holes, core and winding lifting lugs, inspection cover, rating plate, valve schedule plate, accessories and terminal marking plates, two nos. of earthing terminals shall be provided.
- p) Rain hoods to be provided on MOG & PRD. Entry points of wires shall be suitably sealed.
- q) The accessories listed above are indicative only. Accessories which are not mentioned above but required for satisfactory operation of the transformers are deemed to be included in the contract without extra charges.

9.4 Dry Type Auxiliary Transformer

- a) Transformer shall be cast resin encapsulated dry type transformer, made of cold rolled grain-oriented silicon steel laminations of M4 grade or better. Winding conductor shall be electrolytic grade Copper/Aluminium and insulation shall be Class F or better.
- b) The transformers shall be housed in a metal protective housing, having a degree of protection of IP-23 suitable for indoor installation. The enclosure shall be provided with suitable hardware and accessories required for satisfactory operation of the transformer per the relevant standard.

9.5 Warranty

The transformer shall be warranted for minimum of 5 (five) years against all material/manufacturing defects and workmanship.

10. LT/ HT PANEL

- 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/HT Bus bar while in grid tied mode The ratings of all switches should be at least 125% of the maximum current flowing through them.
- b) All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS60947 part I, II and III or equivalent IS wherever applicable
- c) The changeover switches, cabling work should be undertaken by the contractor as part of the project
- d) All the Panels 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 °C, 80 percent humidity upto maximum of 50 °C and dusty weather.
- f) All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better. The enclosure shall be made of shall be made of UV resistant, fire retardant and corrosion resistant material.
- g) Should conform to Indian Electricity Act and rules (till last amendment).
- h) Bidder/ contractor shall submit design and drawings with detailed Bill of Material mentioning the ratings of switchgear and protection equipment.

11. SCADA AND REMOTE MONITORING SYSTEM

- a) The Plant shall be automatically operated and shall be controlled by microprocessor based control system SCADA and should be Open Platform Communications (OPC) compliant. There shall be simultaneous data logging, recording and display system for continuous monitoring of data for different parameters of different sub systems, power supply of the power Plant at DC side and AC side.
- b) An integrated SCADA shall be supplied which should be capable of communicating with all inverters and provide information of the entire Solar PV Grid interactive power Plant.
- c) The SCADA shall be string level monitoring compatible and shall have features of remote access to the real time data. SCADA shall have features for generating the day ahead schedule of generation based on historical data/ suitable logic. Also, system must be capable of sending the telemetry data to the local SLDC via GPRS/ GSM/ suitable mode.

- d) Computer-aided data acquisition unit shall be a separate & individual system comprising of different transducers to read the different variable parameters, A/D converter, multiplexer, de-multiplexer, interfacing hardware and software which will be robust & rugged suitable to operate in the control room Environment.
- e) Reliable sensors for solar isolation, temperature, and other weather and electrical parameters are to be supplied with the data logger unit.
- f) The Data Acquisition System should be housed in a desk made of steel sheet.
- g) All data shall be recorded chronologically date wise. The data file should be MS Excel/ CSV compatible. The data, if needed, can be accessible remotely through authorized access. The data logger shall have internal reliable battery backup and data storage capacity to record all sorts of data simultaneously round the clock. All data shall be stored in a common work sheet chronologically and representation of monitored data shall be in graphics mode or in tabulation form. All instantaneous data can be shown in the Computer Screen. Provision should be available for Remote Monitoring.
- h) SCADA shall measure and continuously record electrical parameters and provide following data (but not limited to) at a 5-15 minute interval.
- i) SCADA shall have feature to be integrated with the local system as well remotely via the web using either a standard modem or a GSM/WIFI modem. The Contractor shall provide compatible software and hardware so that data can be transmitted via. Standard modem.
- j) This will be the Contractor's responsibility to apply and get the suitable connection for SCADA, office & control room on behalf of the MREL/DISCOM & all the expenditures including payment of periodic bills of Internet provider shall be met by the Contractor
- k) SCADA shall be provided with reliable power supply along with backup supply for at least one hour to cater to outage of grid.
- l) The SCADA shall be compatible to the requirements for measuring and reporting the performance-ratio (PR) of the Plant.
- m) The Contractor shall provide all administrative rights/ privileges/passwords of the SCADA system to the MREL/DISCOM. The MREL/DISCOM have rights over the data generated in the Plant.

12. EARTHING

Earthing system shall comply with latest revisions and amendments of the relevant IEC standards and IS codes. In particular, earthing system shall comply with the following standards and codes.

Standard/Code	Description
IS 3043	Code of Practice for Earthing
IEEE 80	IEEE Guide for Safety in AC Substation Grounding
IEEE 142	IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems
Indian Electricity Rules	

- a) Earthing system shall be designed based on system fault current and soil resistivity value obtained from geo-technical investigation report. Earth grid shall be formed consisting of number of earth electrodes sufficient enough to dissipate the system fault current interconnected by earthing conductors.
- b) The earth electrode shall be made of high tensile low carbon steel rod, molecularly bonded by high conductivity copper on outer surface with coating thickness not less than 250 micron as per relevant standards. Suitable earth enhancing material shall be filled around the electrode to lower the resistance to earth. Inspection chamber and lid shall be provided as per IS 3043.
- c) Earth conductors shall be made of copper bonded steel or galvanized steel of sufficient cross section to carry the fault current and withstand corrosion.
- d) Earth electrodes shall not be situated within 1.5m from any building whose installation system is being earthed. Minimum distance between earth electrodes shall be the driven depth of the electrode.
- e) Every alternate post of the transformer yard and switchyard fence shall be connected to the earth grid by one GS flat and gates by flexible lead to the earthed post.
- f) All welded connections shall be made by electric arc welding. For rust protection the welds should be treated with red lead compound and afterwards thickly coated with bitumen compound.

12.1 Tests

Type test reports for earthing electrode, earth enhancing compound and its associated accessories shall be submitted during detailed engineering for approval.

On completion of installation, continuity of earth conductors and efficiency of all bonds and joints shall be checked. Earth resistance at earth terminations shall be measured and recorded.

The earth plate shall be provided to facilitate its identification and for carrying out periodical inspection.

13. LIGHTNING PROTECTION SYSTEM

- a) Lightning Protection System for entire plant against direct lightning strokes shall be provided with Early Streamer Emission (ESE) Air Terminal as per NFC 17-102:2011.
- b) Protection Level for the entire plant shall be level – I.
- c) Each ESE air terminal shall be provided with following accessories.
 - i. Highly insulated poly-plastic adaptor to fix the ESE air terminal with the FRP mast
 - ii. Fiberglass Reinforced Plastic (FRP) mast
 - iii. Coupler to connect FRP mast with GI mast
 - iv. Galvanized Iron mast with base plate and guy wire kit
 - v. Down-conductor: PVC insulated flexible copper cable of suitable size complying with EN 50164-2 or equivalent standard. It shall be routed along the mast with suitable fixings and connectors.
 - vi. Test joint with each down conductor
 - vii. Lightning event counter complying with EN 50164-6 or equivalent standard. It shall be fixed at suitable height in series with the down conductor.
 - viii. Earth termination system in accordance with NFC 17-102. Earth electrodes shall comply with the EN 50164-2 or equivalent standard. Earth enhancing compounds complying with EN 50164-7 or equivalent standard, may be used where soil resistivity is higher and making it impossible to achieve system resistance within specified limit.
- d) Accessories listed above are indicative only and any other fittings or accessories, which are usual or necessary for satisfactory operation of the lightning protection shall be provided by the Contractor without extra charges.
- e) Necessary foundation/anchoring for holding the lightning mast in position to be made after giving due consideration to shadow on PV array, maximum wind speed and maintenance requirement at site in future.

14. WEATHER MONITORING SYSTEM

As a part of weather monitoring system, the Contractor shall provide the following measuring instruments with all necessary software and hardware required to integrate with SCADA.

14.1 Pyranometer

The Contractor shall provide minimum 2 (two) number of secondary standard pyranometers (ISO9060 classification) along with necessary accessories for measuring the incidental solar radiation at horizontal and inclined plane of array at each site.

Specification of the pyranometer shall be as follows.

Parameter	Specifications
Spectral Response	0.31 to 2.8 micron
Time Response (95%)	Maximum 15s
Nonlinearity	+/-0.5%
Temperature Response	+/-2%
Tilt Error	<+/-0.5%
Zero offset temperature change	+/-2W/m ²
Operating temperature range	0°C to +80°C
Non-stability	Maximum ±0.8%
Resolution	Minimum +/- 1W/m ²
Output	Analog output: 4 – 20 mA Serial output: RS485

Each instrument shall be supplied with necessary cables. Calibration certificate with calibration traceability to World Radiation Reference (WRR) or World Radiation Centre (WRC) shall be furnished along with the equipment. The signal cable length shall not exceed 20m. The Contractor shall provide instrument manual in hard and soft form.

14.2 Temperature Sensor

The Contractor shall provide minimum 3 (three) temperature sensors (1 (one) for ambient temperature measurement with shielding case and 2 (two) for module temperature measurement) at each site. The temperature sensor shall be Resistance Temperature Detector (RTD)/ Semiconductor type with measurement range of 0°C to 80°C. The instrument shall have valid calibration certificate.

14.3 Anemometer

Contractor shall provide minimum one no. ultrasonic wind sensor (no moving parts) for wind speed and direction monitoring.

15. DANGER BOARDS

Size of each Danger Notice plates shall be 200mmx150mm made of mild steel sheet and at least 2mm thick, and vitreous enameled white on both sides and with inscription in signal red colors on front side as required. The inscriptions shall be in Hindi, Local Language and English.

16. FIRE ALARM SYSTEM

- a) Any rooms shall have fire detection and alarm system installed as per relevant standards and regulations. The installation shall meet all applicable statutory requirements, safety regulations in terms of fire protection.
- b) Liquefied CO₂/ Foam/ ABC type fire extinguisher shall be upright type of capacity 5/10 kg having IS: 2171. 7 IS: 10658 marked. The fire extinguisher shall be suitable for fighting fire of Oils, Solvents, Gases, Paints, Varnishes, Electrical Wiring, Live Machinery Fires, and all Flammable Liquid & Gas. Contractor shall provide portable fire extinguisher as per the recommendation by relevant fire safety authority.
- c) The minimum 2 no. of fire extinguishers (CO₂ and Foam type each) shall be provided at every buildings/enclose, however Contractor must comply with existing building code for fire Protection by NFPA, IS & State Fire Protection Department.
- d) Sand bucket should be wall mounted made from at least 24 SWG sheet with bracket fixing on wall conforming to IS 2546 at strategic locations.
- e) The plan for fire extinguishing must be provided by the Contractor

17. WATER SUPPLY & CLEANING OF MODULES

- a) Contractor has to plan and install the effective module cleaning system as per the prevailing conditions at Site. The system may include the storage water tanks, pumps, laying of GI/HDPE/UPVC pipes, flexible pipes, taps/ valves, pressure gauges etc. as per the planning by the Contractor. Contractor has to submit the drawing/ plan for the proposed module cleaning system.
- b) All the pipes thus laid must be buried in ground at least 150mm below FGL. Road crossings and drain crossings, the pipes must be passed through GI/ Hume pipes as applicable.

18. TOOLS & TACKLES & SPARES

- a) After completion of installation & commissioning of the power plant, necessary tools & tackles are to be provided free of cost by the contractor for maintenance purpose. The contractor will need to submit a list of tools and tackles along with specification and make for approval from MREL.
- b) 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, 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 as provided in the Appendix, listing out requirement of minimum mandatory spares to be maintained by the contractor.

19. DRAWINGS & MANUALS

- a) Three sets of Engineering, electrical drawings and Installation and O&M manuals are to be supplied. Contractors shall provide complete technical data sheets for each equipment giving details of the specifications along with make/makes in their bid along with basic design of the power plant and power evacuation, synchronization along with protection equipment.
- b) For complete electro-mechanical works, contractors shall supply complete design, details and drawings for approval to MREL/owners before progressing with the installation work

20. SAFETY MEASURES

The contractor 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.

21. MISCELLANEOUS ITEMS

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

22. DISPLAY BOARD

The contractor must display a board at the project site mentioning the following:

- a) Plant Name, Capacity, Location, Type of Renewable Energy plant, Date of commissioning, MREL Name, Contractor's Name, Emergency contact number, details of tie-up with transmission and distribution companies, Power generation and Export FY wise

- b) The size and type of board and display shall be approved by authorized representative before site inspection
- c) List of compliances with parameters are tabulated below

Table: Compliance with Standards & Codes

Parameter	Reference
Service Conditions	Relevant regulation/order
Overall Grid Standards	Central Electricity Authority (Grid Standard) regulations 2010
Equipment	BIS / IEEE / IEC
Meters	Central Electricity Authority and Operation of (Installation Meters) Regulation 2013 & relevant regulations by Electricity Regulatory Commission
Safety and Supply	Central Electricity Authority (Measures of Safety and Electricity Supply) Regulation 2010
Harmonic Current	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013
Synchronization	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013
Voltage	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013
Flicker	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013
Frequency	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013
DC injection	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013
Power Factor	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013
Islanding and Disconnection	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013
Overload and Overheat	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013
Paralleling Device	IEEE 519 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013

23. OPERATION & MAINTENANCE

The Operation and Maintenance shall be comprehensive. The maintenance service provided shall ensure project functioning of the Solar PV system as a whole and Power Evacuation System to the extent covered in the Contract. All preventive / routine maintenance and breakdown / corrective maintenance required for ensuring maximum uptime shall have to be provided. Accordingly, the Comprehensive Operation & Maintenance shall have two distinct components as described below:

23.1 Preventive / Routine Maintenance:

This shall be done by the Contractor regularly and shall include activities such as cleaning and checking the health of the Solar PV system, cleaning of module surface, tightening of all electrical connections, and any other activity including the associated civil works, as mentioned in TS, wear and tear that may be required for proper functioning of the Solar PV system as a whole. Necessary maintenance activities, Preventive and Routine for Transformers and associated switch gears and transmission line also shall be included.

23.2 Breakdown / Corrective maintenance:

Whenever a fault occurs, the Contractor has to attend to rectify the fault & the fault must be rectified within the 48 hours from the time of occurrence of fault. The Contractor must maintain all the records pertaining to all such faults and necessary measures taken. The date of Comprehensive Operation & Maintenance Contract period shall begin from the date of Operational acceptance. However, operation of the Power Plant means operation of system as per TS and workmanship in order to keep the project trouble free covering the O&M period. The Contractor must demonstrate the committed CUF at the end of every year in accordance with commitment made in line with the Performance guarantees.

23.3 Serviceability Level Agreement (SLA):

- a) Contractor shall make efforts to maintain 100 % serviceability of complete Plant including all other associated infrastructure developed by the Contractor during execution of project as its scope of work & the respective report of the same shall be submitted to the Owner.
- b) Contractor shall maintain a Complaint log book, which shall include the timing of logging of complaint including unique Complaint number, time of closure of complaint & its Root Cause Analysis. The complaints should also be logged into and can be viewed from the centralized data monitoring interface at ICCC.
- c) Contractor will be responsible for maintaining the Insurance Policy for the complete Plant and Facilities during the O&M period also. He shall maintain seamless insurance cover during Construction and O&M phases. Copy of policies shall be given to the Owner.

- d) Such rectification work carried out by Owner doesn't exempts/relieves Contractor from its responsibility towards subsequent operation, maintenance, repair & replacement of such component/ infrastructure of the Plant or meeting the performance parameters of the Plant.
- e) O&M Routine & Manpower: Contractor shall provide Preventive / Routine Maintenance schedule based on Original Equipment Manufacturer's guidelines and good engineering practices. The team deployed for the O&M must have the sufficient experience of executing the similar tasks. However, Contractor shall engage additional manpower as and when need arise.
- f) Contractor is requested to provide the list of all the spares required to maintain the facility for O&M period. Contractor agrees to supply such spare parts, as recommended or otherwise required for the effective and hassle-free operation and maintenance of the Facilities. However, the Contractor, with its previous experience, is to provide a list of spares including specifications, supplier details and indicative price, as recommended by him and OEM. The Contractor shall keep and maintain the inventory of such spares for the hassle-free operation during the complete O&M period without additional cost to Owner. Also, at the end of penultimate year of the O&M contract, Contractor shall supply a list of all recommended spares as per the operational requirement of the plant and with reference to the mean time between failures (MTBF), along with detailed specifications, supplier details and tentative cost for future purchase. The price of such spare parts shall include the breakup of taxes and duties as applicable towards purchase and supply of spare parts. Owner, at its discretion, will purchase the spare as required for future operation. However, the Contractor shall replenish the mandatory spares at his cost prior to the completion of the O&M period
- g) Deputation of at least one qualified and experienced engineer and one technician (Diploma or higher Degree in Electrical/Electronics) till the end of the O&M period at project site. The requirement of the number of personnel will be reviewed by MREL. If person found absent from duty the recovery shall be made @ Rs. 500/- per day.
- h) The engineer shall have degree in electrical engineering or diploma in electrical engineering with at least 3 years' experience along with 01 technician with ITI or equivalent
- i) Monthly checks of the Modules, PCUs and BoS (Balance of Systems) shall be carried out as a part of routine preventive and breakdown maintenance
- j) Online Performance Monitoring, controlling, troubleshooting, maintaining of logs & records. A maintenance record register is to be maintained by the operator with effect from Commissioning to record the daily generation, regular maintenance work carried out as well as any preventive and breakdown maintenance along with the date of maintenance, reasons for the breakdown, duration of the breakdown, steps

taken to attend the breakdown, etc. The security of the projects will rest with the contractor till such time operation and maintenance of the project is not handed over to the department. Any theft, damage, manhandling, etc at the site of project components will be addressed and fixed by the contractor at its own cost.

23.4 All the components should be kept clean. It should be ensured that all the components are fastened well at their due place Maintenance guidelines for various components viz. solar panels, inverter, wiring etc. are discussed below:

23.4.1 Solar PV Modules

Although the cleaning frequency for the panels will vary from site to site depending on soiling, it is recommended that

- a) The panels are cleaned at least once every fifteen days.
- b) Any bird droppings or spots should be cleaned immediately
- c) Use water for cleaning
- d) Do not use detergent or any abrasive material for panel cleaning
- e) Isopropyl alcohol may be used to remove oil or grease stains
- f) Do not spray water on the panel if the panel glass is cracked or the back side is perforated
- g) Check if there are any shading problems due to vegetation or new building. If there are, make arrangements for removing the vegetation or moving the panels to a shade-free place
- h) Ensure that the module terminal connections are not exposed while cleaning; this poses a risk of electric shock
- i) Never use panels for any unintended use, e. g. drying clothes, chips etc.

23.4.2 Cables & Connection Boxes

- a) Check the connections for corrosion and tightness
- b) Check the connection box to make sure that the wires are tight, and the water seals are not damaged
- c) There should be no vermin inside the box
- d) Check the cable insulating sheath for cracks, breaks or burns. If the insulation is damaged, replace the wire
- e) If the wire is outside the building, use wire with weather-resistant insulation
- f) Make sure that the wire is clamped properly and that it should not rub against any sharp edges or corners
- g) If some wire needs to be changed, make sure it is of proper rating and type

23.4.3 Inverter

- a) The inverter should be installed in a clean, dry, and ventilated area.
- b) Remove any excess dust in heat sinks and ventilations. This should only be done with a dry cloth or brush
- c) Check that vermin have not infested the inverter. Typical signs of this include spider webs on ventilation grills or wasps' nests in heat sinks

- d) Check functionality, e.g. automatic disconnection upon loss of grid power supply, at least once a month
- e) Verify the state of DC/AC surge arrestors, cable connections, and circuit breakers

24. GROUNDING & WIRING

- a) Suitable grounding system shall be designed and all exposed non-current-carrying metal parts shall be grounded properly. Attention should be paid to prevention of corrosion and over voltages.
- b) All wires shall be new with markings on both sides, with flame retardant insulations and jackets. Aluminum wire shall not be used. Wiring that may be exposed to mechanical damage shall be placed in conduit or armored
- c) Wires shall have identifying labels or markings on both ends. The labels or markings shall be permanent and durable. Stick-on labels will not be allowed. All field wiring between separate equipment items supplied by the Contractor shall be color-coded and “MREL” should be embossed every meter, according to appropriate standards.
- d) In general and where practicable, control and instrumentation wiring shall be separated from power and high-voltage wiring by use of separate compartments or enclosures or by use of separate wire ways and appropriate barrier strips within a common enclosure.
- e) The shield of signal circuits shall be connected to a separate terminal at the terminal block. Signal circuit shields shall be grounded at one point only. Wiring to terminal blocks shall be arranged as marked on wiring diagrams. Terminal groupings shall be in accordance with external circuit requirements. Raceway and cable systems shall not block access to equipment by personnel.

25. TRAINING & TOOLS

- a) The Contractor shall provide training for the rooftop solar PV project at the grid’s site or at its designated location as specified. Such training shall cover all efforts needed for the operation, routine maintenance, and rudimentary repair of the solar PV project. The Contractor may assume that the utility personnel to be trained have a basic understanding of and experience with typical utility equipment. The Contractor shall determine the content and duration for each training session. All training materials must be submitted to and approved by the MREL before the training sessions. Final copies of all training materials shall be provided to MREL after the training has been completed. The above does not relieve the Contractor of its obligation to provide operation, maintenance, diagnostic, repair, safety procedures, and similar information in the plant O&M manual.
- b) Operator Training: The Contractor shall provide the necessary training in proper operation of the solar PV project and related equipment. This training shall be

conducted after completion of the solar PV project performance verification testing but before system commissioning. Emphasis shall be placed on hands-on operating experience, interspersed with the critical background as necessary, including switching procedures and emergency response training.

- c) Maintenance Training: The Contractor shall provide necessary training in maintenance of the solar PV project and related equipment. The maintenance training shall be scheduled after successful completion of the availability guarantee period. The maintenance training shall include, but not be limited to, the following:
- i. Normal maintenance methods
 - ii. Repairs and replacement
 - iii. Diagnostic procedures
 - iv. Equipment calibration
 - v. Re-energization
 - vi. Special tests
 - vii. Special tools
- Safety and grounding procedures
- d) Tools and Equipment: The Contractor shall provide all special tools and equipment for maintenance and operation that are not normally or readily available. The Contractor shall submit a complete list of tools and equipment needed for erection/installation and maintenance and a list of special tools and equipment that will be provided, including prices. The MREL shall have the right to approve the specific special tools and equipment from a safety perspective. Special tools and equipment shall become the property of the MREL at the completion of the solar PV installation. The MREL reserves the right to purchase additional quantities of tools, if desired.
- e) Quality Assurance/Quality Control Program: The Contractor shall develop and submit a quality assurance/quality control program that covers major systems and components (including the solar PV modules, inverters and other major system components). The scope of the program shall include plans covering design, testing, manufacturing, and installation. The MREL reserves the right to witness tests, review data, and enforce the Contractor's program.
- f) Manufacturer-certified factory test reports on major equipment such as transformers, switches, and breakers shall be submitted

26. PERFORMANCE TESTS

- A. Performance Ratio (PR)- Test Procedure
- a) Performance Ratio as determined through the PR Test Procedure specified here should not be less than 75% for Operational Acceptance Test (OAT). The performance ratio will be calculated on a site wise basis.

- b) The Performance Ratio Test to prove the guaranteed performance parameters of the solar power plants shall be conducted for each site separately by the Contractor in presence of the Engineer-in-charge. The Contractor shall make the plant ready to conduct Physical Completion Acceptance Test. The Performance Acceptance Test shall be commenced, within a period of one (1) month after successful Commissioning and, there will be continuous monitoring of the performance for 15 days. Any extension of time beyond the above one (1) month shall be mutually agreed upon. These tests shall be binding on both the parties to the contract to determine compliance of the equipment with the guaranteed performance parameters. This monitoring will be performed on the site under the supervision of MREL.
- c) Effect due to variation of meteorological parameters e.g. ambient temperature, wind, speed, humidity etc. shall not be considered.
- d) PR shall be demonstrated against the installed DC Capacity on a site wise basis.
- e) The test report for the calibration of Pyranometer shall be submitted by the Contractor for approval by MREL. The calibration should be traceable to a national/international laboratory.
- f) The Efficiency or performance ratio (PR) of the PV Plants (according to IEC 61724) is calculated as follows:

Performance Ratio (PR) = YA / YR

Where;

- i. Y_A = Final (actual measured) PV system yield in kilo-watt hours solar generation meter (uni-directional meter) at point of injection in the facility's LT panel (AC output of the plant) during the testing period, and
- ii. Y_R = Reference yield calculated as the product of the insolation on the plane of the collector (i.e. PV modules) in KWh/ m² during the testing period and the installed DC capacity of the plant in KW.

- B. Capacity Utilization Factor (CUF) for each solar project shall be calculated as per the following formula.

$$CUF = \frac{E}{8760 \times P \times (1 - (DF \times (n - 1)))}$$

Where;

- i. E is the number of units recorded in the solar meter at the point of injection in the facility's LT panel (kWh) also recorded in SCADA on an annual basis post commissioning upto the end of O&M tenure.
- ii. 8760 refers to the number of hours in non-leap year. It shall be replaced by 8784 hours during leap year

- iii. P is the plant module capacity in kW
- iv. DF is module degradation factor, 0.7% per year
- v. n is the number of completed years after operational acceptance of the plant

CUF shall be calculated on annual basis for each site from the date of issue of physical completion certificate of the plant by the engineer-in-charge till the end of O&M period. It is the responsibility of the Contractor to build-in the expected variation of irradiance in their design. Irradiance and temperature variation will not be considered for the calculation of CUF. The Grid outage hours shall be subtracted from total number of hours in a year. The Contractor shall submit grid outage certification from competent authority of STU/DISCOM. The contractor shall maintain minimum 20% CUF in the first year of operation of the plant.

27. PERFORMANCE GUARANTEE TEST

The Solar Plant performance will be evaluated through Performance Ratio (PR) test as per IEC 61724 and Capacity Utilization Factor (CUF) calculation as per the formulas and procedures mentioned in the relevant section of the RFP

- a) The minimum acceptable PR of the Plant is 75% and CUF is 20%
- b) As the PR of the Plant is dependent on the quality of Plant equipment and optimum design of the Plant, the contractor shall demonstrate the PR of 75% as per the procedure mentioned for Operational Acceptance of the Plant.
- c) The initial acceptance of each plant will be evaluated post commissioning by measuring PR for continuous 15 days. However, contractor must demonstrate the PR for a period of 15 days as per the PR test procedure specified in relevant clause of the RFP.
- d) The annual performance of each solar PV will be evaluated based on minimum CUF demonstrated at the end of every year from the date of issuance of physical completion certificate till the culmination of the O&M period.
- e) During this period, the contractor shall operate and maintain the Plant with full reliability and up keep.
- f) During O&M contract, the Plant performance will be evaluated for each site based on annual Capacity Utilization Factor. Second year onwards linear degradation of the module output (i.e., 0.7% of DC capacity at STC per year) shall be considered for the calculated CUF every year.
- g) Any routine repair, replacement, overhauling, etc. are to be performed during night times so that no generation loss will be there in day time.

- h) Contractors are expected to make their own study of solar radiation profile and other related parameters of the area & make sound commercial judgment about the Performance Ratio and CUF. It shall be the responsibility of the Contractor to assess the corresponding solar insolation values and related factors of solar Plant along with expected grid availability. Contractor
- i) The contractors are free to install additional DC capacity any time during O&M period, with proper consent by MREL, to meet the desired performance parameters without additional cost to the MREL.

28. COMMISSIONING AND TESTING

- a) The scope of the contractor shall deemed to include Commissioning and Testing of all the equipment including successful handover of Solar PV Project. The commissioning and testing shall be done in accordance with the then applicable standards, Grid Code and the state & central authority regulations.
- b) The Contractor upon completion of installation of equipment and systems, shall conduct commissioning and testing activities, to make the equipment/systems ready for safe, reliable and efficient operation on sustained basis at his expense.
- c) MREL shall have free access to Contractor's manufacturer's works to inspect, expedite and witness shop floor tests. Any materials or work found to be defective or which does not meet the requirements of the specification will be rejected and shall be replaced at Contractor's cost. MREL reserves the right to carry out stage wise inspection of fabrication and components. The Contractor shall furnish a detailed quality assurance plan (QAP) for review.
- d) The test & inspection shall be carried out at manufacturer's work and at the site with the Contractor's obligation. The test and Inspection shall be done in accordance with the relevant standards and the Manufacturer's standard before the delivery to site as well as after the erection and commission at site. The Contractor shall give the list of tests that they will carry out at site to show the performance of Plant.
- e) Only calibrated testing and measuring instruments would be used during commissioning and testing activities by the contractor. Copy of the valid calibration certificates would be provided during inspection to MREL by the contractor.
- f) The shop test shall be carried out to prove the performance parameters of the offered model. The testing shall be done in the presence of the representatives of the department.
- g) All the hardware required for interconnection, synchronization, commissioning shall be in scope of Contractor.
- h) Manufacturer has to submit procedure for Test carried out at their Factory:

- Start Up Trials
 - Load Test
 - Records & Measurements
 - Safety Device List
 - Setting values for all sensors for Pressure and Temperature
 - Dimensional Check-up, Overall Inspection, Completeness of Scope of Supply
 - Shop Test/Load Test for Solar Power Plant
- i) All the tests which are mentioned in the load test of Solar Power Plant will be carried out in presence of MREL's Representative at Site under site conditions and the parameters checked in accordance with the data sheet and guaranteed parameters given by the Contractor.
- j) Final Commissioning of the plant shall occur in respect of the Facilities or plant when:
- the Guarantee Test has been successfully completed
 - PR test has been successfully completed
 - all the pre-commissioning checks and equipment testing has been successfully completed

29. PERMISSIONS AND CLEARANCES TILL PROJECT COMMISSIONING

The Contractor, on behalf of the MREL, shall obtain all applicable statutory approvals / permissions/ clearances required from Government Departments/regulatory Authority till project commissioning and successful handover of the project, including but not limited to the following:-

- a) Pollution control board clearance, if required.
- b) CEIG
- c) Connectivity with State Transmission Company, Central Transmission Company
- d) System Studies (if any)
- e) Power Evacuation
- f) Environment Clearance
- g) Construction Power
- h) CT, PT and Metering System testing at Authorized lab as per Requirement of the concerned Agencies.
- i) Application for Connectivity
- j) SLDC Data Transmission/Integration at SLDC
- k) Any other approvals and permissions not specifically mentioned but may be required for smooth Construction and Operation & Maintenance of the Plant.

30. APPENDIX-I

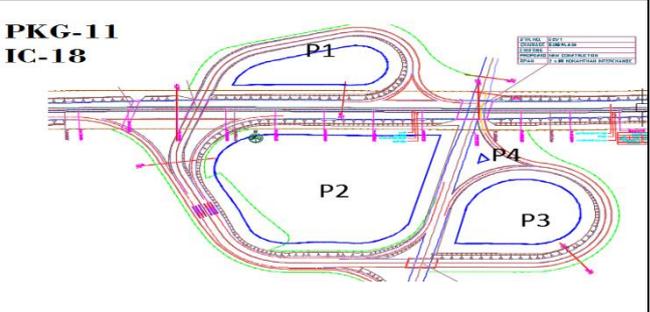
A. MANDATORY SPARE LIST

S. No.	Equipment/Material	Quantity (for each type and rating)
1	PV Modules	0.5% of total supply
2	MC4 connectors (including Y-connector if used)	1% of total supply
3	String Monitoring Unit	5% of total supply

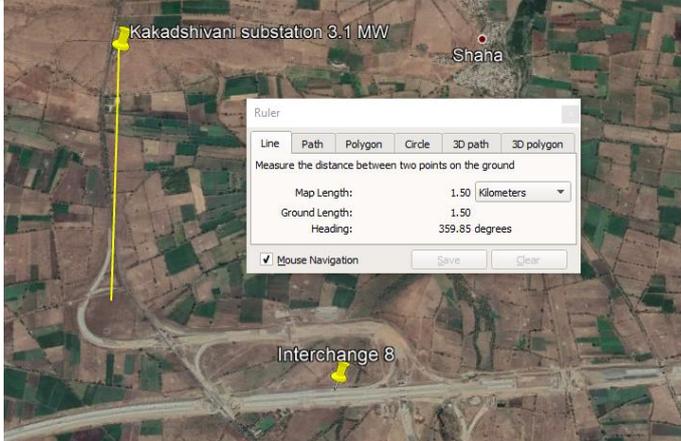
B. BILL OF MATERIALS

Tentative Bill of Material is provided Annexure-1 shared separately with the RfP document. Bidder may use the bill of materials as a reference which consists of project wise rating and quantity for the bidding purpose to bid for the project. Bidders are advised to visit the site and make themselves fully aware of the site conditions before placing the bid.

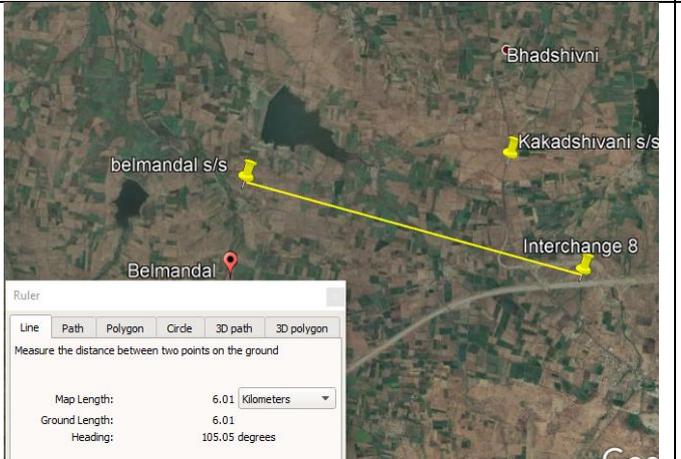
31. APPENDIX-II

Site	Interchange 8
Plot No / Gat No	
District	Washim
Village	Bhilkheda
Taluka	Karanja Lad
Available Land in Acres	70.31
Point of Grid Interconnection	11kV
Name of Substation for 2 MW Solar Plant	33/11 kV Belamandala
Distance of Evacuation Line	6.5 km
Name of Substation for 3 MW Solar Plant	33/11 kV Kakadshivni
Distance of Evacuation Line	1.5 km
Google Map showing project location Lat: 20.51° N, Long: 77.45° E	 <p>PKG-11 IC-18</p>

Kakadshivni 33/11 kV S/S	20°31'48.96"N, 77°27'0.23"E
--------------------------	-----------------------------



Belmandal 33/11 kV S/S	20°31'36.12"N 77°24'22.32"E
------------------------	-----------------------------



Site Photographs:	 <p>A photograph of the site showing a dirt road and a construction area under a clear sky.</p>
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32. APPENDIX-III

List of equipment to be tested at Manufacturing Facility and at Site

S. No.	Name of the Item/ Equipment
1	Solar PV modules
2	Module Mounting Structures including fasteners and clamps
3	Main Junction Boxes with monitoring capabilities
4	Power Conditioning Units/ Inverters
5	Transformer(s)
6	Circuit breakers, CT and PT set (at all voltage levels used)
7	AC & DC distribution panels/ boards, PDB, LDB etc
8	Control and Relay Panel
9	Earth mat for switch yard, DC field array and equipment
10	Control and power cables
11	Surge Protection devices and Fuses
12	Cable for power evacuation with suitable support system
13	Lightning Arresters of suitable ratings

SECTION – VI EVALUATION OF BIDS

1. Tender Bidding Methodology:

e-tendering

Single Stage Two Envelope

2. Tender Bidding Methodology under Sealed Bid System of Single Stage Two Envelop:

2.1 Broad Outline of Activities from Bidder's Perspective:

2.1.1 Procure a Class III Digital Signing Certificate (DSC).

2.1.2 Register on mahatenders.gov.in

2.1.3 View Notice Inviting Tender (NIT) on mahatenders.gov.in

2.1.4 Download Official Copy of RFP Documents from <https://mahatenders.gov.in>

Note: Official copy of RFP Document is distinct from downloading 'Free Copy of RFP Document'. To participate in a tender, it is mandatory to procure official copy of Tender Document for that tender.

2.1.5 Clarification to Tender Document on <https://mahatenders.gov.in>

a) Query to MREL (Optional)

b) View response to queries posted by MREL

2.1.6 Bid-Submission on <https://mahatenders.gov.in>

2.1.7 Respond to MREL Post- Tender Opening Event (TOE) queries

For participating in this tender online, the following instructions are to be read carefully. These instructions are supplemented with more detailed guidelines on the relevant screens of the <https://mahatenders.gov.in>

3.1 Evaluation of Techno - Commercial Part (First Envelope)

The Authority will carry out a detailed evaluation of the bids of the qualified bidders in order to determine whether the technical aspects are in accordance with the requirements set forth in the Bidding Documents. In order to reach such a determination, the Authority will examine the information supplied by the bidders, and other requirements in the Bidding Documents, taking into account the following factors:

a) overall completeness and compliance with the Technical Specifications of the bid. The bid that does not meet minimum acceptable standards of completeness, consistency and detail may be rejected for non-responsiveness.

b) compliance with the time schedule

- c) Any other relevant technical factors that the Authority deems necessary or prudent to take into consideration.
- d) Any deviations to the commercial and contractual provisions stipulated in the RFP Document.
- e) details furnished by the bidder in response to the requirements specified in the RFP Document.

3.2 Opening of Second Envelope by Employer

The Second Envelope i.e., Price Bid of only those Bidders shall be opened who are determined as having submitted substantially responsive bids and are ascertained to be eligible and qualified to satisfactorily perform the Contract as per the eligibility and qualification criteria put to tender. In case a bidder is disqualified for not satisfying the eligibility and qualification criteria, the Second Envelope/Price bids submitted by such bidders shall not be opened and the EMD shall be returned as per the Tender provisions.

3. Evaluation of Financial Part (Second Envelope)

- 3.1** The Employer will examine the Price Bids (Second Envelopes) to determine whether they are complete, whether any computational errors have been made, whether the documents have been properly signed, and whether the bids are generally in order.
- 3.2** Arithmetical errors will be rectified in line with Clause no. 36 of ITB.
- 3.3** The comparison shall also include the impact of Goods & Service Tax (GST) in line with the provisions of the RFP Document.
- 3.4** The Authority's comparison will also include the costs resulting from application of the evaluation procedures described below:
 - a) The Evaluated Bid Value (EBV) shall be calculated using the following method:
 - i. EPC/ LSTK Contract Value i.e., Total sum of the price comprising of Ex Works Supply of all Equipment and materials including mandatory spares and any other supplies specified in the Contract Documents, providing all services i.e. Transportation for delivery at site and Insurance including unloading, storage, handling at site, Civil works, Erection, Installation, Testing and Commissioning, performance testing in respect of all the equipment's supplied and any other services specified in the RFP Document including Goods & Service Tax as per the Technical Scope of Work.
 - ii. Net Present Value (NPV) of O&M Contract Price including GST for the entire period in years to be calculated at a discounting rate as mentioned in the RFP document.

The exact format for sharing the base price and all Goods & Service Tax is attached in SOR 1& SOR 2.

SOR -1 is the Schedule and Breakup of Lump sum Price (Supply, Service and NPV of O&M) of the Tender. SOR -2 comprises of the yearly Breakup of the NPV of O&M price for 10 years period.

Bidder to mention the Total NPV of O&M amount for total 10 years in SOR-1 which should match with the Total NPV of O&M amount for total 10 years in SOR 2.

b) **Evaluated Bid Value (EBV)** = (1) EPC/ LSTK Price as quoted by the bidder + (2) O & M Contract Price for the entire period in years on NPV basis

Discounting Rate for NPV calculation considered is 9.08%

4. Evaluation of Price Bid

4.1 Following factors shall be considered for evaluation of Price Bids:

- a) Total Evaluated Bid Values (TEBV) for all the Bidders shall be compared to determine the lowest Total Evaluated Bid Value (TEBV) as given under SOR- 1 Format of Schedule of Rates & the lowest (L1) evaluated Bid, will be selected for the Notification of Award (NOA).
- b) The mentioned Total Evaluated Bid Value will be considered up to 2 decimal places only.
- c) Bidder with Total lowest EBV shall be L-1, Bidder with Second lowest EBV shall be L-2 & so on.
- d) The Total Evaluated Bid Value shall be inclusive of Goods & Service Tax (GST) as quoted by the bidder. The award shall be placed Inclusive of GST with taxation bifurcation separately indicated as submitted by the successful bidder in the SOR format.

5.2 Selection of Successful Bidders

The bidders shall be selected in the ascending order with lowest quoted Total Price (EPC +NPV of O&M price) (being L1).

- a. The final price arrived by adding the EPC price and the NPV of O&M price.
- b. In case of tie in Total Price (i.e. the sum of their last quoted discounted EPC price and the NPV of O&M price), among two or more bidder then L-1 will be the bidder who has the highest average annual turnover as per the documents submitted as a part of their bid.



5. At the end of selection process, a Notification of Award (NOA) will be issued to the successful bidder (L1).
6. In all cases, Authority's decision regarding selection of bidder or annulment of tender process shall be final and binding on all participating bidders

SECTION-VII SAMPLE FORMS AND FORMATS

Preamble

This Section (Section - VII) of the Bidding Documents [named as Contract Form] provides proforma to be used by the bidders at the time of their bid preparation and by the Contractor subsequent to the award of Contract.

The Bidder shall complete, sign and submit with its bid the relevant FORMS to be used **unamended**, in accordance with the requirements included in the Bidding Documents.

The Bidder shall provide the EMD, in the form included hereafter acceptable to the Authority, pursuant to the provisions in the instructions to Bidders. The Performance Security(ies) and Bank Guarantee for Advance Payment forms should not be completed by the bidders at the time of their bid preparation. Only the successful Bidder will be required to provide the Performance Security(ies) and Bank Guarantee for Advance Payment, according to one of the forms indicated herein acceptable to the Authority and pursuant to the provisions of the General and Special Conditions of Contract, respectively.

Depending on specific facts and circumstances related to the Bid/ Tender and the contract, the text of the Forms herein may need to be modified to some extent. The Authority reserves the right to make such modifications in conformity with such specific facts and circumstances and rectify consequent discrepancies, if any. However, modifications, if any, to the text of the Forms that may be required in the opinion of the Bidder/ Contractor shall be affected only if the same is approved by the Authority. The Authority's decision in this regard shall be final and binding.

<u>LIST OF FORMS & FORMAT</u>	
Form No.	Description
FORM-0	COVERING LETTER
FORM-1	BIDDER'S GENERAL INFORMATION
FORM-2	INDEMNITY BOND TO BE EXECUTED BY THE CONTRACTOR FOR THE REMOVAL / DISPOSAL OF SCRAP/ DISPOSAL OF SURPLUS MATERIAL – IF APPLICABLE
FORM-3	INDEMNITY BOND TO BE EXECUTED BY THE CONTRACTOR FOR THE PLANT HANDED OVER FOR PERFORMANCE OF ITS O&M CONTRACT (ENTIRE SOLAR PHOTO VOLTAIC PLANT) – DURING HANDOVER
FORM-4	TECHNICAL CAPACITY OF THE BIDDER
FORM-5	FINANCIAL CAPACITY OF THE BIDDER
FORM-6	DETAILS OF ELIGIBLE PROJECT
FORM-7	POWER OF ATTORNEY FOR SIGNING OF BID
FORM-8	Deleted
FORM-9	INDEMNITY BOND_____
FORM-10	NO DEVIATION CONFIRMATION
FORM-11	DECLARATION REGARDING BANNING AND LIQUIDATION, COURT RECEIVERSHIP ETC.
FORM-12	BIDDER'S EXPERIENCE
FORM-13	CHARTERED ACCOUNTANT CERTIFICATE FOR FINANCIAL CAPABILITY OF THE BIDDER
FORM-14	LOA (LETTER OF ACCEPTANCE)
FORM-15	STATEMENT OF LEGAL CAPACITY
FORM-16	DETAILS OF ONGOING WORKS
FORM-17	SHAREHOLDING CERTIFICATE
FORM-18	BANK GUARANTEE FOR PBG
FORM-19	WORK ORDER/ CONTRACT AGREEMENT
FORM-20	LETTER OF FINANCIAL BID
FORM-21	SUBMISSION OF FINANCIAL BID (PART A)
FORM-22	SUBMISSION OF FINANCIAL BID (PART B)



FORM-0

COVERING LETTER

(The Covering Letter should be submitted on the Letter Head of the Bidding Company)

Ref. No. _____

Date: _____

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

Tel.#:

Fax#:

E-mail address#

To,

The Director

Mahasamruddhi Renewable Energy Ltd.,

Plot No. A/792, Near Lilawati Hospital,

Opp. Bandra Reclamation Bus Depot,

K.C. Marg, Bandra (West),

Mumbai-400050, Maharashtra

Phone: 022- 26517900

Email id: eamsrdc@gmail.com

Sub: Bid for “Design, Engineering, Supply, Construction, Erection, Testing & Commissioning and Comprehensive O&M of cumulative 5 MW (AC) Ground Mounted Solar PV Power Plant at Village Bhilkheda, Taluka Karanja Lad District Washim (Interchange No. 8) along HHBTMSM in the Sites of Maharashtra”.

Dear Sir / Madam,

1. We, the undersigned.... [insert name of the ‘Bidder’] having read, examined and understood in detail the RFP Document for “Design, Engineering, Supply, Construction, Erection, Testing & Commissioning of cumulative 5 MW (AC) Ground Mounted Solar PV Power Plant along with Ten (10) Years Plant O&M at the Sites along Hindu Hrudaysamrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg (HHBTMSM)” hereby submit our Bid comprising of Techno Commercial Bid and Price Bid. We confirm that neither we nor any of our Parent Company/ Affiliate / Ultimate Parent Company has submitted Bid other than this Bid directly or indirectly in response to the aforesaid tender.

2. We give our unconditional acceptance to the RFP conditions, dated..... and documents attached thereto, issued by MREL, as amended. As a token of our acceptance to the RFP document, the same have been initialed by us and enclosed to the Bid. We shall ensure that we execute such documents as per the provisions of the RFP and provisions of RFP document shall be binding on us.
3. Bid Capacity - We have bid for the Total capacity of 5 MW (AC).
4. Bid Processing Fees -We have paid the non-refundable Bid Processing Fees of INR..... (*Insert Amount*).
5. Earnest Money Deposit - We have paid Earnest Money Deposit of INR..... (*Insert Amount*) through SBI payment gateway and receipt of payment of EMD is attached herewith.
6. We have submitted our Price Bid strictly as per the RFP conditions, without any deviations, conditions and without mentioning any assumptions or notes for the Price Bid in the said format(s).
7. In case we are a Successful Bidder, we shall furnish a declaration at the time of commissioning of the Project to the effect that neither we have availed nor we shall avail in future any Incentive other than that to be received from MREL for implementation of the project.
8. Acceptance - We hereby unconditionally and irrevocably agree and accept that the decision made by MREL in respect of any matter regarding or arising out of the tender process shall be binding on us. We hereby expressly waive any and all claims in respect of tender process.

We confirm that there are no litigations or disputes against us, which materially affect our ability to fulfil our obligations with regard to execution of projects of the capacity offered by us.

9. Familiarity with Relevant Indian Laws & Regulations - We confirm that we have studied the provisions of the relevant Indian laws and regulations as required to enable us to submit this Bid and execute the works as per terms and conditions of the RFP, in the event of our selection as Successful Bidder. We further undertake and agree that all such factors as mentioned in tender have been fully examined and considered while submitting our Bid.
10. Contact Person

Details of the contact person are furnished as under:

Name:



Designation:

Company:

Address:

Phone Nos.:

Fax Nos.:

E-mail address:

11. It is confirmed that our Bid is consistent with all the requirements of submission as stated in the RFP and subsequent communications from the Authority. The information submitted in our Bid is complete, strictly as per the requirements stipulated in the RFP and is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our Bid. We confirm that all the terms and conditions of our Bid are valid for acceptance for a period as specified in BDS from the Bid due date.

We confirm that we have not taken any deviation so as to be deemed non-responsive.

Dated the _____ day of _____, 2021

Thanking you,

We remain,

Yours faithfully,

Name, Designation and Signature of Authorized Person in whose name Power of Attorney/ Board Resolution/ Declaration. Copy of Power of Attorney/ Board Resolution/ Declaration should be enclosed along with Covering Letter.

FORM-1

BIDDER'S GENERAL INFORMATION

(To be submitted on the Letter Head of the Bidding Company)

Sr. No.	Description	Remarks
1	Name of the Bidder	
2	Status of the Bidder	
3	Mailing Address of Registered Office	
4	Mailing Address of Operational Office	
5	E-mail	
6	Web site	
7	Authorized Contact Person(s) with Name, Designation, Address and Mobile Phone No., Email address / Fax No. to whom all references shall be made	
8	Year of Incorporation	
9	Number of Years in Operation	
10	ISO Certification Yes/No	
11	Name of the Banker	
12	Branch Details of Bank	
13	Type of Account with Account Number	
14	IFSC Code	
15	Permanent Account Number (PAN) of the Bidder	<i>(Copy of PAN Card to be enclosed)</i>
16	Whether the Vendor is registered/ Likely to be registered under GST	Yes or No : If Yes, then customer will be treated as registered customer & he will have to provide further details as stated on the below left hand side
17	GST ID (Proof to be submitted – GST No acknowledgement OR Email from GoI)	
18	GSTN Address	
19	PF Registration Number with Details	<i>(Copy of Registration to be enclosed)</i>
20	ESI Registration Number with Details	<i>(Copy of Registration to be enclosed)</i>
21	Have the Bidder/ Company ever been debarred by any Govt. Dept./ Undertaking for undertaking any work	Yes/No <i>(If answer is YES, please provide details)</i>
22	Reference of any document information attached by the Bidder other than specified in the tender.	
23	Bidding company is listed in India	Yes/No

(Signature of Authorized Signatory)
With Stamp



Form 2

**Indemnity Bond to be executed by The Contractor for The Removal / Disposal of
Scrap/Disposal of Surplus Material**

(TO BE EXECUTED ON STAMP PAPER OF APPROPRIATE VALUE)

INDEMNITY BOND

This INDEMNITY BOND executed this day of 2021 by(Name of Bidder)....., a Company registered under the Companies Act, 1956/2013 having its registered office(s) at(Office Address)....., hereinafter called the Indemnifier(s)/ Contractor(s) (which expression shall, unless excluded by or repugnant to the context, be deemed to mean and include its successors, administrators, assigns and executors).

IN FAVOUR OF

Mahasamruddhi Renewable Energy Limited, the Special Purpose Vehicle of Maharashtra State Road Development Corporation Ltd., a company fully owned by the Government of Maharashtra and incorporated under the Companies Act, 2013 having its registered office at Plot No. A/792, Near Lilawati Hospital, Opp. Bandra Reclamation Bus Depot, K. C. Marg, Bandra West, Mumbai – 400 050 (hereinafter referred to as “the Authority”)

1. The Authority has awarded the Contractor, the contract for execution of work (“Scope of Work”) as mentioned in the contract agreement datedentered into between the Authority and the Contractor, relating to(Name & Address of Project/Station)..... (hereinafter called ‘the Project’).
2. The Indemnifier for the purpose of execution of its Scope of Work had from time to time procured and stored(Details of Material)..... at the Project Site.
3. After completion of the Scope of Work by the Indemnifier, it has been identified that scrap (Details of Scrap Material & its Quantity).....and/or surplus (Details of Surplus Material & its Quantity)..... belonging to Indemnifier is lying at the said Project Site.
4. Now, the scrap (Details of Scrap Material & its Quantity).....and/or surplus (Details of Surplus Material & its Quantity)..... belonging to the Indemnifier, requires to be removed by Indemnifier from the Project Site.

NOW THEREFORE THIS INDEMNITY BOND WITNESSETH AS UNDER:

1. That Indemnifier by way of this indemnity requests the Authority to issue approval in favour of Indemnifier for removal of scrap (Details of Scrap Material & its



Quantity) and/or surplus(Details of Surplus Material & its Quantity)..... belonging to the Indemnifier, from the project site .

2. That the Indemnifier shall ensure clearing of its scrap (Details of Scrap Material & its Quantity) and/or surplus (Details of Surplus Material & its Quantity)..... by itself, as aforesaid.
3. That Indemnifier in consideration of the premises above, for itself and its respective, executors, administrators and assigns, jointly and severally agree and undertake from time to time and at all times hereafter to indemnify the Authority and keep the Authority indemnified from and against all claims, demands, actions, liabilities and expenses which may be made or taken against or incurred by the Authority by reason of the issue of necessary approval by the Authority and permitting Indemnifier to remove scrap(Details of Scrap Material & its Quantity).....and/or surplus(Details of Surplus Material & its Quantity).....belonging to Indemnifier, from the project site.
4. That Indemnifier undertakes to indemnify and keep the Authority harmless from any act of omission or negligence on the part of the Contractor in following the statutory requirements with regard to removal/disposal of scrap and surplus belonging to Indemnifier, from the Project Site aforesaid, by the Indemnifier. Further, in case the laws require the Authority to take prior permission of the relevant Authorities before handing over the scrap and/or surplus to the Indemnifier, the same shall be obtained by the Indemnifier on behalf of the Authority

IN WITNESS WHEREOF, the Indemnifier, through its authorized representative, has executed these presents on the Day, Month and Year first mentioned above at

.....(Name of the Place).....

Witness:

Indemnifier
(Authorised Signatory)

**INDEMNITY BOND TO BE EXECUTED BY THE CONTRACTOR FOR THE PLANT
HANDLED OVER FOR PERFORMANCE OF ITS O&M CONTRACT (ENTIRE SOLAR
PHOTO VOLTAIC PLANT)**

(TO BE EXECUTED ON STAMP PAPER OF APPROPRIATE VALUE)

INDEMNITY BOND

THIS INDEMNITY BOND IS made this..... day of 2021..... by a Company registered under the Companies Act, 1956/2013 concern having its Registered Office at..... (hereinafter called as "Contractor" or "Obligor" which expression shall include its successors, administrators, assigns and executors) in favour of Mahasamruddhi Renewable Energy Limited, the Special Purpose Vehicle of Maharashtra State Road Development Corporation Ltd., a company fully owned by the Government of Maharashtra and incorporated under the Companies Act, 2013 having its registered office Plot No. A/792, Near Lilawati Hospital, Opp. Bandra Reclamation Bus Depot, K. C. Marg, Bandra West, Mumbai – 400 050 (hereinafter referred to as "the Authority")

WHEREAS the Authority has awarded to the Contractor a Contract for vide Contract Agreement dated _____ executed between the _____ and the Authority (hereinafter called the "Contract").

AND WHEREAS the contractor has completed the first part of the contract i.e. Design, Engineering, Supply, Construction, Erection, Testing & Commissioning of the project site and now has to undertake the second part of the contract i.e. operation and maintenance of the project site for a period of 10 years in terms of which the Authority is required to hand over various Equipment and facilities provided under Supply & Service Contract, herein after called "Solar Photo Voltaic Plant" to the Contractor for operation and maintenance.

AND WHEREAS The Contractor is required to execute an Indemnity Bond in favour of the Authority for the Solar Photo Voltaic Plant handed over to it by the Authority for the purpose of Performance of the Contract/O&M portion of the Contract.

NOW, THEREFORE, this Indemnity Bond witnesseth as follows:

1. That in consideration of Solar Photo Voltaic Plant as mentioned in the Contract, Valued at Rs.....#..... (Rupees.....) handed over to the Contractor for the purpose of operation and maintenance, the Contractor hereby undertakes to indemnify and shall keep the Authority indemnified, for the full value of the Solar Photo Voltaic Plant. The Contractor hereby acknowledges actual receipt of the Solar Photo Voltaic Plant as detailed in the Schedule appended hereto. The Contractor

shall hold such Solar Photo Voltaic Plant in trust as a "Trustee" for and on behalf of the Authority

2. That the Contractor is obliged and shall remain absolutely responsible for the safe O&M/protection and custody of the Solar Photo Voltaic Project against all risks whatsoever till completion of O&M Contract in accordance with the terms of the Contract and is taken over by the Authority. The Contractor undertakes to keep the Authority harmless against any loss or damage that may be caused to the Solar Photo Voltaic Plant.
3. The Contractor undertakes that the Solar Photo Voltaic Plant shall be used exclusively for the Performance/execution of the Contract strictly in accordance with its terms and conditions and no part of the Solar Photo Voltaic Plant shall be utilised for any other work or purpose whatsoever. It is clearly understood by the Contractor that non-observance of the obligations under this Indemnify Bond by the Contractor shall inter-alia constitute a criminal breach of trust on the part of the Contractor for all intents and purposes including legal/penal consequences.
4. That the Authority is and shall remain the exclusive owner of the Solar Photo Voltaic Plant free from all encumbrances, charges or liens of any kind, whatsoever. The Solar Photo Voltaic Plant shall at all time be open to inspection and checking by Engineer-in-Charge/Engineer or other employees /agents authorised by the Authority in this regard. Further, the Authority shall always be free at all times to take possession of the Solar Photo Voltaic Plant in whatever form the Solar Photo Voltaic Plant may be, if in its opinion, the Solar Photo Voltaic Plant are likely to be endangered, mis-utilised or converted to uses other than those specified in the Contract, by any acts of omission or commission on the part of the Contractor or any other person or on account of any reason whatsoever and the Contractor binds itself and undertakes to comply with the directions or demand of the Authority to return the Solar Photo Voltaic Plant without any demur or reservation.
5. That this Indemnify Bond is irrevocable. If at any time any loss or damage occurs to the Solar Photo Voltaic Plant or the same or any part thereof is mis- utilised in any manner whatsoever, then the Contractor hereby agrees that the decision of the Engineer-in Charge of the Authority as to assessment of loss or damage to the Solar Photo Voltaic Plant shall be final and binding on the Contractor. The Contractor binds itself and undertakes to replace the lost and/or damaged Solar Photo Voltaic Plant at its own cost and / or shall pay the amount of loss to the Authority without any demur, reservation or protest. This is without prejudice to any other right or remedy that may be available to the Authority against the Contractor under the Contract and under this Indemnify Bond.

NOW THE CONDITION of this Bond is that if the Contractor shall duly and punctually comply with the terms of and conditions of this Bond to the satisfaction of the Authority, THEN, the above Bond shall be void, but otherwise, it shall remain in full force and virtue.



IN WITNESS WHEREOF the Contractor has hereunto set its hand through its authorized representative under the common seal of the Company, the day, month and year first above mentioned.

SCHEDULE

Particulars of the Equipment / Facilities handed-over	Quantity	Value	Other details, (if any)	Signature of Attorney in token of receipt

WITNESS

For and on behalf of

M/s.

- I. 1. Signature -----
- 2. Name -----
- 3. Address -----

- Name -----
- Signature -----
- Designation -----

Authorised representative*

- II. 1. Signature -----
- 2. Name -----
- 3. Address -----

Common Seal
(In case of Company)

Indemnity Bonds are to be executed by the authorised persons and (i) In case of contracting Company under common seal of the Company of (ii) having the power of attorney issued under common seal of the company with authority to execute Indemnity Bonds, (iii) In case (ii) the original Power of Attorney if it is specifically for our contract or a Photostat copy of the Power of Attorney if it is a General Power of Attorney and such documents should be attached to Indemnity Bond.

TECHNICAL CAPACITY OF THE BIDDER

(Refer to clause 1.1 of SCC)

Project Code	Name of Project	Cost/Other Details	Date of Completion

(Add more rows if necessary)

Refer FORM-6, Details of Eligible Projects

Provide details of only those projects that have been undertaken by the Bidder, by a JV in which the bidder was a technical execution member.

Construction shall not include supply of goods or equipment except when such goods or equipment form part of a turn-key construction contract/ EPC/other project contract for the project. In no case shall the cost of maintenance and repair, operation of any infrastructure projects and land be included while computing the Eligible Project.

FINANCIAL CAPACITY OF THE BIDDER

ANNUAL TURNOVER OF LAST 3 YEARS:

Year	Amount (Currency)
Year 1:	
Year 2:	
Year 3:	
Average	

FINANCIAL DATA FOR LAST AUDITED FINANCIAL YEAR:

Description	Year _____
	Amount (Currency)
Current Assets	
Current Liabilities	
Working Capital (Current Assets- Current liabilities)	
Net Worth	

Yours faithfully

(Signature and stamp (on each page) of Authorized Signatory of Bidding Company.

Instructions:

1. The Bidder shall attach copies of the balance sheets, financial statements and Annual Reports for 3 years preceding the Bid Due Date. The financial statements shall:
 - (a) reflect the financial situation of the Bidder;
 - (b) be audited by a statutory auditor;
 - (c) be complete, including all notes to the financial statements; and

(d) correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).

2. Net Cash Accruals shall mean Profit After Tax + Depreciation.
3. Net Worth (the “Net worth”) shall means the aggregate value of the paid-up share capital and all reserves created out of the profits and securities premium account, after deducting the aggregate value of the accumulated losses, deferred expenditure and miscellaneous expenditure not written off, as per the audited balance sheet, but does not include reserves created out of revaluation of assets, write-back of depreciation and amalgamation.
4. Year 1 will be the latest completed financial year, preceding the bidding. Year 2 shall be the year immediately preceding Year 1 and so on. In case the Bid Due Date falls within 3 (three) months of the close of the latest financial year
5. The Bidder shall also provide the name and address of the Bankers of the Bidder to the Authority.
6. The Bidder shall provide an Auditor’s Certificate specifying the net worth of the Bidder and also specifying the methodology adopted for calculating such net worth.

DETAILS OF ELIGIBLE PROJECTS

Project Code:

Entity: Self/Members:

Item	Particulars of the Project
Title & nature of the project	
Entity for which the project was constructed	
Location	
Project cost	
Date of commencement of project/ contract	
Date of completion/ commissioning	
Equity shareholding (with period during which equity was held)	

Instructions:

1. Bidders are expected to provide information in respect of each Eligible Project in this form. The projects cited must comply with the eligibility criteria specified in the RFP, as the case may be. Information provided in this section is intended to serve as a backup for information provided in the Proposal. Bidder should also refer to the Instructions below.
2. The Project Codes would be a, b, c, d etc.
3. A separate sheet should be filled for each Eligible Project.
4. Project particulars such as name, address and contact details of owner/ Authority/ Agency (i.e. concession grantor, counter party to concession, etc.) may be provided.
5. Provide the estimated capital cost of Eligible Project.
6. In case of projects under construction, the likely date of completion or commissioning, as the case may be, shall be indicated.
7. Experience for any activity relating to an Eligible Project shall not be claimed twice. In other words, no double counting in respect of the same experience shall be permitted in any manner whatsoever.

8. Certificate from the Bidder's statutory auditor or its respective clients must be furnished for each Eligible Project. In jurisdictions that do not have statutory auditors, the auditors who audit the annual accounts of the Bidder may provide the requisite certification.

9. It may be noted that in the absence of any detail in the above certificates, the information would be considered inadequate and could lead to exclusion of the relevant project in computation of Experience.



FORM-7

POWER OF ATTORNEY FOR BIDDING COMPANY

(To be stamped in accordance with Stamp Act, the Non-Judicial Stamp Paper of Appropriate Value

should be in the name of the Bidder)

Know all men by these presents, We (name and address of the registered office of the Bidding Company as applicable) do hereby constitute, appoint and authorize Mr./Ms. (name & residential address) who is 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 necessary in connection with or incidental to submission of our Bid for (insert details of Tender) in response to the Tender No dated issued by Mahasamruddhi Renewable Energy Limited (herein after referred to as "the MREL") including signing and submission of the Bid and all other documents related to the Bid, including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other document which the MREL may require us to submit, participate in the pre-bid meeting. The aforesaid Attorney is further authorized for making representations to the MREL and providing information/ responses to MREL representing us in all matters before MREL, and generally dealing with MREL in all matters in connection with Bid till the completion of the bidding process as per the terms of the above mentioned Tender.

We hereby agree to ratify all acts, deeds and things done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall be binding on us and shall always be deemed to have been done by us.

All the terms used herein but not defined shall have the meaning ascribed to such terms under the Tender.

IN WITNESS WHEREOF WE,, THE ABOVE-NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS DAY OF 2.....

For
(Signature, name, designation and address)
of person authorized by Board Resolution
(in case of Firm/ Company)/ partner in case of Partnership firm

Witnesses:

- 1.
- 2.

Accepted

.....



(Signature)
(Name, Title and Address of the Attorney)

(Notarised)
Person identified by me/ personally appeared before me/
Attested/ Authenticated*
(*Notary to specify as applicable)
(Signature Name and Address of the Notary)

Seal of the Notary
Registration No. of the Notary
Date:.....

Note:

The mode of execution of the power of attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and the same should be under common seal of the executant affixed in accordance with the applicable procedure. Further, the person whose signatures are to be provided on the power of attorney shall be duly authorized by the executant(s) in this regard.

The person authorized under this Power of Attorney, in the case of the Bidding Company/ Lead Member being a public company, or a private company which is a subsidiary of a public company, in terms of the Companies Act, 1956, with a paid-up share capital of more than Indian Rupees Five Crores, should be the Managing Director/ Whole Time Director/ Manager appointed under section 269 of the Companies Act, 1956. In all other cases the person authorized should be a director duly authorized by a board resolution duly passed by the Company.

Also, wherever required, the executant(s) should submit for verification the extract of the chartered documents and documents such as a Board resolution/ power of attorney, in favour of the person executing this power of attorney for delegation of power hereunder on behalf of the executant(s).

- *Wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders' resolution/power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.*
- *For a Power of Attorney executed and issued overseas, the document will also have to be legalised by the Indian Embassy and notarised in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalised by the Indian Embassy if it carries a conforming Appostille certificate.*
- *Original to be submitted in physical submission.*



FORM-9

(TO BE EXECUTED ON STAMP PAPER OF APPROPRIATE VALUE)
INDEMNITY BOND

THIS INDEMNITY BOND IS made this..... day of 20..... by **M/s.**, a Company registered under the Companies Act, 1956/ having its Registered Office at(hereinafter called as "Contractor" or "Obligor" which expression shall include its successors and assigns) in favour of Mahasamruddhi Renewable Energy Limited a fully owned Government Company incorporated under the Companies Act,1956 having its Registered Office at Plot No. A/792, Near Lilawati Hospital, Opp. Bandra Reclamation Bus Depot, K. C. Marg, Bandra West, Mumbai – 400 050 (hereinafter referred to as MREL and its Project at.....hereinafter called "....." which expression shall include its authorized representative, successors and assigns) :

WHEREAS MREL has awarded to the Contractor a Contract vide its LOA NoDated & Contract Agreementexecuted on _____ (hereinafter called the "Contract").

NOW, THEREFORE, this Indemnify Bond witnesseth as follows:

1. That in consideration of Solar Photo Voltaic Plant as mentioned in the Contract, total valued at Rs. (Rupees only), valued as a summation of the referred contracts and handed over to the Contractor for the purpose of Performance of the Contract (s), the Contractor hereby undertakes to indemnify and shall keep MREL and its authorized representatives, indemnified, for the full value of the Solar Photo Voltaic Plant during the tenure of this contract or its extension if agreed to.
2. Contractor confirms that they are aware of all the contractual obligations regarding payment to all personnel and labours including that of the sub – vendors & sub – contractors of Contractor, involved in this project., as well as various contractual, statutory and non – statutory obligations as per legal requirements and have complied with the obligations to the best of its information and knowledge.
3. Contractor also confirms, that they are in compliance of all the provisions and requirements, including but not limited to, the following acts/ laws/ provisions and other applicable statutory and non-statutory regulations:
 - a. Contract Labor (Regulation & Abolition) Act 1970
 - b. Wages Act 1936
 - c. Minimum Wages Act 1948
 - d. Employer's Liability Act 1938
 - e. Workmen's Compensation Act 1923
 - f. Industrial Dispute Act 1947



- g. Maturity Benefit Act 1961
- h. Mines Act 1952
- i. Employees State Insurance Act 1948.

4. Contractor, hereby confirms, that in the event any contractual or statutory obligation is found to be deficient in compliance or found non-complied with by the Contractor, the Contractor indemnifies MREL from liability due to such deficiency or non compliance and undertakes to take necessary actions to ensure immediate compliance with the same within the permissible time period/extended time period as the case may be.
5. Contractor also confirms, should there be any charges or penalty, of any kind imposed on MREL or its authorized parent or subsidiary company, for non-compliance of legal or statutory requirements by the Contractor during the subsistence of the contract, the Contractor agrees to indemnify MREL and MSRDC against all damages, libel or suit, in full for the same on raising such a demand by MREL/ MSRDC and undertakes to pay the same within 30 days from such demand.
6. We do further undertake that this above stated warranty is inclusive of materials and labour.
7. That the Contractor is obliged and shall remain absolutely responsible for the safe O&M/ protection and custody of the Solar Photo Voltaic Project against all risks whatsoever till completion of O&M Contract in accordance with the terms of the Contract. The Contractor undertakes to keep MREL and MSRDC harmless against any loss or damage that may be caused to the Solar Photo Voltaic Plant.

IN WITNESS WHEREOF, the Indemnifier, through its authorized representative, has executed these presents on the Day, Month and Year first mentioned above at

.....(Name of the Place).....

Witness:

Indemnifier
(Authorised Signatory)



FORM-10

NO DEVIATION CONFIRMATION
(To be submitted on the Letter Head of the Bidding Company)

Ref. No. _____

Date: _____

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

Tel.#: _____

Fax#: _____

E-mail address# _____

To,

The Director

Mahasamruddhi Renewable Energy Limited

Plot No. A/792, Near Lilawati Hospital,

Opp. Bandra Reclamation Bus Depot,

K. C. Marg, Bandra West,

Mumbai – 400 050, Maharashtra

Phone: 022- 26517900

Email id: **eamsrdc@gmail.com**

Sub: Bid for “**Design, Engineering, Supply, Construction, Erection, Testing & Commissioning and Comprehensive O&M of cumulative 5 MW (AC) Ground Mounted Solar PV Power Plant at Village Bhilkheda, Taluka Karanja Lad District Washim (Interchange No. 8) along Hindu Hrudaysamrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg in Maharashtra**”.

Dear Sir / Madam,

I/We, _____(name of bidder), am/are desirous of participating the subject tender/bid. I/We have perused the RFP document and have understood the contents and terms and conditions therein. I/We understand that any 'deviation/ exception' in any form may result in rejection of my/our bid. I/ We, therefore, certify that I/we have not taken any 'exception/ deviation' anywhere in the bid and I/we agree that if any 'deviation/ exception' is mentioned or noticed by the Authority, my/our bid may be rejected by the Authority without assigning any reason whatsoever to me/us.

Place: [Signature of Authorized Signatory of Bidder]

Date: Name:

Designation:

Seal:



FORM-11

**DECLARATION REGARDING BANNING, LIQUIDATION,
COURT RECEIVERSHIP ETC.
(To be submitted on the Letter Head of the Bidding Company)**

Ref. No. _____

Date: _____

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

Tel.#: _____

Fax#: _____

E-mail address# _____

To,

The Director

Mahasamruddhi Renewable Energy Limited

Plot No. A/792, Near Lilawati Hospital,

Opp. Bandra Reclamation Bus Depot,

K. C. Marg, Bandra West,

Mumbai – 400 050, Maharashtra

Phone: 022- 26517900

Email id: **eamsrdc@gmail.com**

Sub: Bid for “**Design, Engineering, Supply, Construction, Erection, Testing & Commissioning and Comprehensive O&M of cumulative 5 MW (AC) Ground Mounted Solar PV Power Plant at Village Bhilkheda, Taluka Karanja Lad District Washim (Interchange No. 8) along Hindu Hrudaysamrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg in the State of Maharashtra**”.

Dear Sir / Madam,

We hereby confirm that we are not on Banning /black List by Employer/ Owner or government or semi government authority/Public Sector undertaking/urban local body etc and similar entities for any non-performance/breach of terms and conditions/“poor performance” or “corrupt and fraudulent practices” or any other reason and that the bar/ban subsists as on the bid due date

Further, we confirm that neither we nor our allied agency/(ies) (as defined in the Procedure for Action in case of Corrupt/ Fraudulent/ Collusive/ Coercive Practices) are on banning list of Employer/ Owner or the Ministry of New & Renewable Energy.



We also confirm that we are not under any liquidation, court receivership or similar proceedings or 'bankruptcy'.

In case it comes to the notice of MREL that we have given wrong declaration in this regard, the same shall be dealt as 'fraudulent practices' and action shall be initiated as per the Procedure for action in case of Corrupt/Fraudulent/Collusive/Coercive Practices.

Further, we also confirm that in case there is any change in status of the declaration prior to award of contract, the same will be promptly informed to MREL by us.

Further during the tender evaluation or after issuance of Letter of Intent or after award of the contract, it comes to the knowledge of MREL that any false averment regarding my/our eligibility, qualification, experience, submission, undertaking or other particulars was made by me/us at the RFP stage, our offer/award, as the case may be, will be immediately rejected/withdrawn/cancelled by the Authority and I/We shall be debarred for a period of 5 years from the date of communication by the Authority from participating in any future tenders/assignments of Maharashtra State Road Development Corporation Limited and/or any of its subsidiary or Special Purpose Vehicles and that the Earnest Money/Performance Security, as the case may be, submitted by me/us shall stand forfeited and I/We shall not have any claim/dispute regarding the same with the Authority.

Place: [Signature of Authorized Signatory of Bidder]

Date: Name:

Designation:

Seal:



FORM-12

BIDDER'S EXPERIENCE

(To be submitted on the Letter Head of the Bidding Company)

Ref. No. _____

Date: _____

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

Tel.#: _____

Fax#: _____

E-mail address# _____

**To,
The Director
Mahasamruddhi Renewable Energy Limited**

Plot No. A/792, Near Lilawati Hospital,
Opp. Bandra Reclamation Bus Depot,
K. C. Marg, Bandra West,
Mumbai – 400 050, Maharashtra
Phone: 022- 26517900

Email id: **eamsrdc@gmail.com**

Sub: Bid for “**Design, Engineering, Supply, Construction, Erection, Testing & Commissioning and Comprehensive O&M of cumulative 5 MW (AC) Ground Mounted Solar PV Power Plant at Village Bhilkheda, Taluka Karanja Lad District Washim (Interchange No. 8) along Hindu Hrudaysamrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg in the State of Maharashtra**”.

Description of the Services	
LOA /WO No. and date	
Full Postal Address & phone nos. of Client. <i>Name, designation and address of Engineer/ Officer-in-Charge (for cases other than purchase)</i>	
Value of Contract/Order (<i>Specify Currency Amount</i>)	
Date of Commencement of Services	
Scheduled Completion Time (Months)	
Date of Actual Completion	
Reasons for delay In execution, if any	

Place: _____

Date: _____

[Signature of Authorized Signatory of Bidder]

Name: _____

Designation: _____

Seal _____



FORM-13

**FORMAT OF CHARTERED ACCOUNTANT CERTIFICATE
FOR FINANCIAL CAPABILITY OF THE BIDDER
(To be submitted on the Letter Head of the Chartered Accountant)**

Ref. No. _____

Date: _____

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

Tel.#: _____

Fax#: _____

E-mail address# _____

To,

The Director

Mahasamruddhi Renewable Energy Limited

Plot No. A/792, Near Lilawati Hospital,

Opp. Bandra Reclamation Bus Depot,

K. C. Marg, Bandra West,

Mumbai – 400 050, Maharashtra

Phone: 022- 26517900

Email id: eamsrdc@gmail.com

Sub: Bid for “**Design, Engineering, Supply, Construction, Erection, Testing & Commissioning and Comprehensive O&M of cumulative 5 MW (AC) Ground Mounted Solar PV Power Plant at Village Bhilkheda, Taluka Karanja Lad District Washim (Interchange No. 8) along Hindu Hrudaysamrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg in the State of Maharashtra**”.

Dear Sir / Madam,

We have verified the Annual Accounts and other relevant records of M/s..... (Name of the bidder) and certify the following

Further, we certify that the Financially Evaluated Entity (ies) had an Annual Turnover

A. ANNUAL TURNOVER OF LAST 3 YEARS:

Year	Amount (Currency)
Year 1:	
Year 2:	
Year 3:	

B. FINANCIAL DATA FOR LAST AUDITED FINANCIAL YEAR:

Description	Year _____
	Amount (Currency)
Current Assets	
Current Liabilities	
Working Capital (Current Assets- Current liabilities)	
Net Worth	

Yours faithfully
(Signature and stamp (on each page) of Authorized Signatory of Bidding Company.

Name:

Date:

Place:

Signature and stamp (on each page) of Chartered Accountant/Statutory Auditors of Bidding
Company.

Name:

Date:

Place:

FORMAT OF LOA

To,

M/s. _____

Sub: Bid for “**Design, Engineering, Supply, Construction, Erection, Testing & Commissioning and Comprehensive O&M of cumulative 5 MW (AC) Ground Mounted Solar PV Power Plant at Village Bhilkheda, Taluka Karanja Lad District Washim (Interchange No. 8) along Hindu Hrudaysamrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg in the State of Maharashtra**”– Letter of Acceptance.

Ref:

In accordance with your financial offer excluding taxes amounting to Rs. _____ (Rupees _____ only) for the work of Bid for “**Design, Engineering, Supply, Construction, Erection, Testing & Commissioning and Comprehensive O&M of cumulative 5 MW (AC) Ground Mounted Solar PV Power Plant at Village Bhilkheda, Taluka Karanja Lad District Washim (Interchange 8) along Hindu Hrudaysamrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg in the State of Maharashtra**” this Letter of Acceptance (the “LOA”) is issued, in duplicate to you. You have to within 7 (seven) days of the receipt of this LOA, sign and return the duplicate copy of the LOA in acknowledgement thereof. In the event the duplicate copy of the LOA duly signed by you is not received by the stipulated date, the MREL may, unless it consents in writing to extension of time for submission thereof, withdraw the acceptance of your offer and appropriate the EMD as Damages on account of your failure to acknowledge the LOA.

You are requested to thereafter attend this office for signing the contract agreement in the requisite proforma given in the RFP document, you are also directed to deliver to the Authority a legal opinion from your legal counsel with respect to your authority to enter into Agreement and the enforceability of the provisions thereof, within 10 (ten) days of the date of issue of this LOA, which shall be valid to a period as specified in the RFP document. Subsequently you have to furnish the Performance Security as per RFP within 10 (ten) days of signing of Agreement. Failure to submit the performance security as stipulated, shall entitle the MREL to withdraw the acceptance of your offer and the EMD shall also stand forfeited to the MREL as damages.

Authorised Signatory,
MREL, Mumbai



FORM-15

**STATEMENT OF LEGAL CAPACITY
(TO BE FORWARDED ON THE LETTERHEAD OF THE BIDDER)**

Ref. No. _____

Date:

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

Tel.#: _____
Fax#: _____
E-mail address# _____

To,
The Director
Mahasamruddhi Renewable Energy Limited
Plot No. A/792, Near Lilawati Hospital,
Opp. Bandra Reclamation Bus Depot,
K. C. Marg, Bandra West,
Mumbai – 400 050, Maharashtra
Phone: 022- 26517900
Email id: **eamsrdc@gmail.com**

Sub: Bid for “**Design, Engineering, Supply, Construction, Erection, Testing & Commissioning and Comprehensive O&M of cumulative 5 MW (AC) Ground Mounted Solar PV Power Plant at Village Bhilkheda, Taluka Karanja Lad District Washim (Interchange No. 8) along Hindu Hrudaysamrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg in the State of Maharashtra**”.

Dear Sir,

We hereby confirm that we satisfy the terms and conditions laid out in the RFP document.

We have agreed that (insert individual's name) will act as our representative and has been duly authorized to submit the RFP. Further, the authorised signatory is vested with requisite powers to furnish such letter and authenticate the same.

Thanking you,

Yours faithfully,
(Signature, name and designation of the authorised signatory)
For and on behalf of.....

DETAILS OF ONGOING WORKS

S. No.	Name of the work	Contract Price (INR Cr)	Appointed Date	Original Scheduled Completion Date	Likely Date of Completion	Reason for Delay#
1						
2						
3						
4						
..						

(In the event that the Bidder had failed to achieve the Completion of any project within a period of 90 (ninety) days from the Schedule Completion Date of the project, unless such failure had occurred due to Force Majeure or for reasons solely attributable to the Client, the Bidder shall be deemed to be ineligible for bidding this project (under bidding). This restriction is applicable if the contract value of the delayed project was not less than Rs. 300 Crore.)

#To be supported with valid certificate issued from Independent Engineer / Client's Engineer/ Supervision Consultant / Engineer-in-charge

I / We certify that all the information furnished above is true in all respects.

..... Name of the Bidder

Signature of the authorized signatory: _____

Name of the Authorised Signatory: _____

Date: _____

Place: _____



FORM-17

SHAREHOLDING CERTIFICATE

(To be submitted on the Letter Head of the Bidder as part of Technical bid)

Name of the Equity Holder	Type and Number of Shares Owned	% of Equity Holding	Extent of Voting Rights

Yours faithfully

(Signature and Stamp of Authorized Signatory of Bidder)

Name:

Date:

Place:

(Signature and Stamp of Company Secretary/ Director/ Chartered Accountant)



FORM-18

**FORM OF BANK GUARANTEE
[Performance Security/Additional Performance Security]**

(To be stamped in accordance with Stamp Act if any, of the country for issuing bank)

Ref.: Bank Guarantee:

Date:

Dear Sir,

In consideration of Mahasamruddhi Renewable Energy Limited, represented by its Director (hereinafter referred as the 'Client', which expression shall, unless repugnant to the context of meaning thereof include its successors, administrators and assigns) having awarded to M/s [name of Bidder] a [type of company], established under laws of [country] and having its registered office at [address] (hereinafter referred to as the 'Bidder' which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and permitted assigns), an Assignment for preparation of [name of assignment] Contract by issue of Client's Contract Letter of Award No. [reference] dated [date] and the same having been unequivocally accepted by the Bidder, resulting in a Contract valued at Rs. [amount in figures and words] for (Scope of Work) (hereinafter called the 'Contract') and the Bidder having agreed to furnish a Bank Guarantee amounting to Rs. [amount in figures and words] to the Client for performance of the said Agreement.

We [Name of Bank] incorporated under [law and country] having its Head Office at [address](hereinafter referred to as the Bank), which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators executors and assigns) do hereby guarantee and undertake to pay the Client immediately on demand and/ or, all monies payable by the Bidder to the extent of Rs. [amount in figure and words] as aforesaid at any time up to [date] without any demur, reservation, contest, recourse or protest and/ or without any reference to the Bidder. Any such demand made by the Client on the Bank shall be conclusive and binding notwithstanding any difference between the Client and the Bidder or any dispute pending before any Court, Tribunal, Arbitrator or any other authority.

We agree that the Guarantee herein contained shall be irrevocable and shall continue to be enforceable until the Client discharges this guarantee.

The Client shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee, from time to time to vary the advance or to extend the time for performance of the Contract by the Bidder nor shall the responsibility of the bank be affected by any variations in the terms and conditions of the contract or other documents.

The Client shall have the fullest liberty without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have



against the Client and to exercise the same at any time in any manner, and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract between the Client and the Bidder any other course or remedy or security available to the client. The Bank shall not be relieved of its obligations under these presents by any exercise by the Client of its liberty with reference to the matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of the Client or any other indulgence shown by the Client or by any other matter or thing whatsoever which under law would but for this provision have the effect of relieving the Bank.

The Bank also agrees that the Client at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Bidder and notwithstanding any security or other guarantee that the client may have in relation to the Bidder's liabilities.

This Guarantee shall be irrevocable and shall remain in full force and effect until discharge by the Bank of all its obligations hereunder.

This Guarantee shall not be affected by any change in the constitution or winding up of the Bidder /the Bank or any absorption, merger or amalgamation of the Bidder /the bank with any other Person.

Notwithstanding anything contained herein above our liability under this guarantee is limited to Rs. [amount in figure and words] and it shall remain in force up to and including [date] and shall extend from time to time for such period(s) (not exceeding one year), as may be desired by M/s [name of Bidder] on whose behalf this guarantee has been given. Date this [date in words] day [month] of [year in 'yyyy' format] at [place].

WITNESS

1. [signature, name and address]
2. [signature, name and address]

[Official Address]

Designation

[With Bank Stamp]

Attorney as Per Power of Attorney No. Dated

Strike out, whichever is not applicable.



The stamp papers of appropriate value shall be purchased in the name of bank which issues the 'Bank Guarantee'. The bank guarantee shall be issued either by a bank (Nationalized/Scheduled) located in India or a foreign bank through a correspondent bank (scheduled) located in India or directly by a foreign bank which has been determined in advance to be acceptable to the Client.

FORMAT FOR WORK ORDER/ CONTRACT AGREEMENT

Ref: No. _____

Date: _____

To,

Successful Bidder:

Name of the successful bidder,

Address of the successful bidder

Sub.: **WORK ORDER** for "Name of the work".

Ref.:

i) Tender ref. no. and references of all the correspondences done by the bidder after bid opening.

Dear Sir,

With reference to the above, MREL is pleased to accept your bid price and issue this Work Order for the "*Name of the work*". This LOA is to be read in conjunction with our aforementioned tender and its subsequent amendment/s (if any), which is/are (an) integral part of this WO. Terms and Conditions mentioned in this LOA shall supersede the conflicting terms and conditions mentioned elsewhere in the Tender and/or its amendment/s (if any).

1. Scope of Supplies/ Work, Project Execution And Technical Specifications

As defined in the RFP document.

2. Contract Price {*all-inclusive for the costs/expenses for the scope of supplies/works for finished product, technical specifications, inspection, testing, warranty, maintenance, etc. and of the costs of freight & transportation, loading/unloading, Packaging & Forwarding, transit insurance, handling, for and including transfer to and delivery at site, warehouse, other costs incidental to delivery, levies, duties, custom duties, custom clearance, port charges etc. and **exclusive of GST**.*}

Contract Price table will be same as per the RFP document.

(Prices to be mentioned in INR only)

Price Variation: Prices, as in the WO, and till the contract's validity's extension (*if any*), shall remain firm and shall not be subject to any escalation till full contractual assignments'/works' completion/execution, for free delivery at sites.

3. Taxes, Duties & Levies:

The prices/rates are inclusive of cost of finished product which includes the following:

- a) Packaging and forwarding charges
- b) Freight and transit insurance charges covering transportation
- c) Un loading at site/ warehouse
- d) All applicable duties and taxes except GST (ISGT, CGST, SGST and UGST)

4. Terms of Payment:

Will be same as per the RFP document.

At the time of payment of bills, the income tax, if any, shall be deducted at source as per Government rules and guidelines as may be prevailing at the time of payment. Further, for availing the benefit of lower income tax rates supplied from outside India, bidder shall provide Income Tax Clearance Certificate (ITCC)/ Tax Residency Certificate from concerned tax authorities for claiming lower tax deduction, if any.

If some of the expenditures for the Related Services are to be incurred in India, such expenditures shall be payable in INR.

5. Delivery Locations, Terms, Schedule & Timelines:

Delivery schedule as given below shall be follows:

As mentioned in section V of the RFP document.

6. Contract Agreement:

The contractor/supplier shall submit Contract Agreement on Rs. 100/- denomination stamp paper (two original copies) within 28 days from the date of issuance of WO, to Contracts Dept., MREL for execution. The date of purchase of stamp paper should be after date of WO. The Purpose on stamp paper should be written as Contract Agreement. The instruments shall only be signed only by the authorized signatory.

7. Dispute Resolution:

Will be same as per RFP document

8. Contract Performance Guarantee (CPG):

Will be same as per the RFP document.

9. Service Level Agreement (SLA) / Liquidated Damages (LD):

Will be same as defined in the RFP document.

- 10. Insurance:** The Goods supplied under the Contract shall be fully insured in Indian Rupees against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery. For delivery of goods at site, the insurance shall be obtained by the Contractor, for an amount not less than the Contract Price of the goods from “warehouse to warehouse” (final destinations) on “All Risks” basis including War risks & strikes.
- 11. Transportation, Demurrage Wharf age, Etc.:** The supplier is required under the Contract to transport the goods to place of destination defined as “Site”. Transport to such place of destination in India, including insurance, as shall be specified in the Contract, shall be arranged by the Contractor, and the related cost is included in the Contract Price. The supplier is to also ensure compliance to all safety guidelines, rules and regulations, labour laws, etc. The supplier shall indemnify MREL for any accident, injury met by its labour, employee or any other person working for them. Any compensation sought by its labour, employee or any other person working for them shall be paid by the supplier as per settlement solely. MREL shall have no role to play in this matter.
- 12. Interchangeability of Product:** The supplier is to submit interchangeability certificate for its product/components supplied for replacement during warranty and maintenance period and even when it is purchased from open market. In case due to change in technology, the supplied product is not available during warranty/ maintenance period, then the improved version of product can be used in warranty/maintenance period with same or improved technical parameters or the combination thereof after written communication of Engineer-in-charge at same cost & terms and conditions.
- 13. Adherence to Specifications:** If it is found that the materials supplied/services rendered are not of the right quality or are not in accordance with the Contract-stipulated specifications/scope of work and terms & conditions, or received in damaged and broken conditions, or are not satisfactory owing to any reason, of which MREL shall be the sole judge, MREL shall be entitled to reject the material so delivered/disregard the services so rendered, cancel the contract and buy the item/material/services from open market / other sources and recover the loss, if any, from the supplier, reserving to ourselves the right to forfeit the SD/CPG furnished by the supplier against the contract. The supplier shall make its own arrangements to remove the rejected material within a fortnight of instruction to do so. Thereafter, the material will lie entirely at the supplier’s risk and responsibility and storage charges, along with any other charges applicable, will be recoverable from the supplier.

Correspondence:

All correspondence related to BG/commercial terms, etc. related to above work shall be addressed to:



All correspondence, including submission of bills/invoices, warranty certificate, quality checks & other documents, work/dispatch schedule, etc. related to above work shall be addressed to:

Engineer-in-Charge for this contract:

We request you to return the duplicate copy of this WO, duly signed and stamped by the authorized signatory of your company, within fifteen (15) days of receipt towards acceptance of the WO. If no communication is received by then, it shall be treated as your unconditional acceptance of the WO.

Thanking you,
Yours faithfully,

for & on behalf of MREL



FORM-20

Letter comprising the Financial BID

To,
The Director
Mahasamruddhi Renewable Energy Limited
Plot No. A/792, Near Lilawati Hospital,
Opp. Bandra Reclamation Bus Depot,
K. C. Marg, Bandra West,
Mumbai – 400 050, Maharashtra
Phone: 022- 26517900
Email id: eamsrdc@gmail.com

Sub: Bid for “Design, Engineering, Supply, Construction, Erection, Testing & Commissioning and Comprehensive O&M of cumulative 5 MW (AC) Ground Mounted Solar PV Power Plant at Village Bhilkheda, Taluka Karanja Lad District Washim (Interchange No. 8) along Hindu Hrudaysamrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg in the State of Maharashtra”.”.

Dear Sir,

1. With reference to your RFP document dated _____, I/we, having examined the Bidding Documents and having understood their contents, hereby submit my/our BID for the aforesaid Project. The BID is unconditional and unqualified.
2. I/ We acknowledge that the Authority will be relying on the information provided in the BID and the documents accompanying the BID for selection of the Contractor for the aforesaid Project, and we certify that all information provided in the Bid are true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying the BID are true copies of their respective originals.
3. The BID Price has been quoted by me/us after taking into consideration all the terms and conditions stated in the RFP, Draft Contract Agreement, our own estimates of costs and after a careful assessment of the site and all the conditions that may affect the project cost and implementation of the project.
4. I/ We acknowledge the right of the Authority to reject our BID without assigning any reason or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.
5. In the event of my/ our being declared as the Selected Bidder, I/we agree to enter into an Agreement in accordance with the draft that has been provided in this RFP document. We agree not to seek any changes in the aforesaid draft and agree to abide by the same and also agree that the Authority however shall be free to make any suitable modification/alteration in the draft of the agreement, if need be.



6. I/ We shall keep this offer valid for 120 (one hundred and twenty) days from the BID Due Date specified in the RFP.

7. I/ We hereby submit our BID and offer a BID Price online for undertaking the aforesaid Project in accordance with the Bidding Documents and the Agreement.

Yours faithfully,
(Signature, name and designation of the Authorised signatory)
Place:
Date:
Name & seal of Bidder

Format for Submission of Financial Bid
(Part A)
(To be submitted online separately)

Date:

RFP No:

Sr. No.	Description	Project cost for the Scope of work as per RFP in Rs. (A)	GST (B)	Total Project cost for the Scope of work as per Bid document in Rs. C= A + B
1	Supply, insurance and transportation at site			
2.	Design, engineering, Construction, Erection, Testing & Commissioning of cumulative 5 MW (AC) Ground Mounted Solar PV Power Plant at Site			
Amount in Rupees				

Date:

Signature of the Authorised signatory:

Place:

Printed Name.....

Business Address: Designation:

Country of Incorporation: (Common Seal)
(State or Province to be indicated)

Format for Submission of Financial Bid
(Part B)
(To be submitted online separately)

Date:

RFP No:

Sr. No.	Description
1	Comprehensive O&M for a period of 10 years including defect liability period from the date of commissioning of the solar power project for 5 MW (AC) Ground Mounted Solar PV Power Plant at Village Bhilkheda Taluka Karanja Lad, District Washim (Interchange 8) along HHBTMSM Maharashtra

Sr. No.	Year	Cost for the scope of work as per RFP document (Rs.) (A)	GST (B)	Total O&M cost for the Scope of work as per RFP including GST in Rs. C = A + B
1	Year 1			
2	Year 2			
3	Year 3			
4	Year 4			
5	Year 5			
6	Year 6			
7	Year 7			
8	Year 8			
9	Year 9			
10	Year 10			
	Total in figures			
	Total in words			
Net Present Value of 10 years O & M cost at 9.08 %				

Date:

Signature of the Authorised signatory:

Place:

Printed Name.....

Business Address: Designation:

Country of Incorporation: (Common Seal)
(State or Province to be indicated)