

Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required.

**(JREDA)
Government of Jharkhand**

Tender Reference No. 07/JREDA/CMC/GCRT/23-24



Jharkhand Renewable Energy Development Agency (JREDA)
3rd Floor, S.L.D.C. Building, Kusai Colony, Doranda, Ranchi-834002.
Ph.: 0651-2491161, Fax: 0651-2491165,
E-mail: info@jreda.com; Website: www.jreda.com

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Govt. of Jharkhand
Energy Department
Jharkhand Renewable Energy Development Agency (JREDA)
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E-mail: info@jreda.com; Website: www.jreda.com

e-Procurement Notice (Urgent)

Tender Reference No.: 07/JREDA/CMC/GCRT/23-24

Dated: 16.05.2023

1	Name of the work	Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required.
2	Completion of work	60 (Sixty) Days
3	Period of contract	05 (Five)Years
4	Date of publication of NIT on website: http://jharkhandtenders.gov.in	19.05.2023 (Friday)
5	Date & time of Pre-bid meeting	23.05.2023 (Tuesday)
6	Last date & time for receipt of online bids	05.06.2023 (Monday) up to 05:00 P.M.
7	Submission of original copies of Bid fee & EMD (Offline)	05.06.2023 and 06.06.2023 up to 5.00 P.M.
8	Technical Bid Opening Date & Time	07.06.2023 (Wednesday) at 03:00 PM
9	Name & address of office inviting tender	Director, Jharkhand Renewable Energy Development Agency (JREDA) 3 rd Floor, SLDC Building, Kusai, Doranda, Ranchi- 834002 (Jharkhand)
10	Contact no. of procurement officer	0651-2491167/68/61/9570086777
11	Helpline no. of e-procurement	0651-2491167/68/61

**Any corrigendum/addendum can be seen on website: <http://jharkhandtenders.gov.in> & www.jreda.com.
Further details can be seen on website: <http://jharkhandtenders.gov.in> & www.jreda.com**

Sd/-
Director,
JREDA, Ranchi

Section -1

NIB No: 07/JREDA/CMC/GCRT/23-24

List of Important dates & details of Bids

1.	Name of work	Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required.	
2	Estimated Project Cost	₹ 1,85,14,000/-	
3	Tender reference no.	07/JREDA/CMC/GCRT/23-24	
4	Mode of submission of tender	Online through www.jharkhandtenders.gov.in	
5	Cost of Bid document (Non-refundable)	❖ For General Bidder: ₹ 11,800/- (inclusive of 18% GST) ❖ For MSE of Jharkhand: Rs. Nil	
6	Earnest Money Deposit	❖ For General Bidder: ₹ 4.37 Lakhs ❖ For MSE of Jharkhand: Rs. Nil	
7	Date of publication of NIT on website: http://jharkhandtenders.gov.in	19.05.2023 (Friday)	
8	Period of downloading of bidding documents	Start date: 20.05.2023	Time: 10.00 AM
		End date: 05.06.2023	Time: 05.00 PM
9	Bid online submission	Start date: 27.05.2023	Time: 10.00 AM
		End date: 05.06.2023	Time: 05.00 PM
10	Technical bid opening date	07.06.2023 (Wednesday)	Time: 03.00 PM
11	Authority inviting bids	Director, Jharkhand Renewable Energy Development Agency (JREDA)	
12	Address	Jharkhand Renewable Energy Development Agency (JREDA) 3 rd Floor, SLDC Building, Kusai, Doranda, Ranchi- 834002. Ph.No: 2491161, Fax No: 0651-2491165 Web site: www.jreda.com E-mail: info@jreda.com	

Note:

- The tender fee and Earnest Money Deposit (EMD) in original must be submitted between all working days from **05.06.2023** and **06.06.2023**. If tender fee and EMD are not received before mentioned date and time, tender shall not be accepted.
- This Bank Guarantee must include SFMS (Structural Financial Management System) as per JREDA Bank Details Which is as:
Name of Bank: State Bank of India
IFSC Code: SBIN0009010
Branch Details: Ashok Nagar Branch, Ranchi

Place for receiving tender fee & EMD.Jharkhand Renewable Energy Development Agency (JREDA), 3rd Floor, SLDC Building, Kusai, Doranda, Ranchi- 834002.

Section-2

NIB No: 07/JREDA/CMC/GCRT/23-24

Instructions to Bidders

Detailed instructions & documents to be furnished for online bidding.

1. The guidelines to submit bid online can be downloaded from website <http://Jharkhandtenders.gov.in>
 2. The interested bidders can download the bid from the website "<http://Jharkhandtenders.gov.in>".
 3. To participate in bidding process, bidders have to get 'Digital Signature Certificate (DSC)' as per Information Technology Act-2000 to participate in online bidding. This certificate will be required for digitally signing the bid. Bidders can get above mentioned digital signature certificate from any approved vendors (CCA). Bidders, who already possess valid Digital Certificates, need not to procure new Digital Certificate.
 4. The bidders have to submit their bids online in electronic format with digital Signature. The bids without digital signature will not be accepted. No proposal will be accepted in physical form.
 5. Bids will be opened online as per time schedule mentioned in Section 1
 6. Bidders should get ready with the scanned copies of cost of documents & EMD as specified in the tender document. Before submission of online bids, bidders must ensure that scanned copy of all the necessary documents have been attached with bid.
 7. Bidder have to produce the original D.D. towards tender fee & EMD in approved form to the authority "Director, Jharkhand Renewable Energy Development Agency, Ranchi" on the date & time as mentioned in the NIT failing which bidder will be disqualified. The details of cost of documents, EMD specified in the tender documents should be the same as submitted online (scanned copies) otherwise tender will summarily be rejected.
 8. Uploaded documents of valid successful bidders will be verified with the original before signing the agreement. The valid successful bidder has to provide the originals to the concerned authority.

The department will not be responsible for delay in online submission due to any reason.
 9. All the required information for bid must be filled and submitted online.
 10. Other details can be seen in the bidding documents.
- B. Details of documents to be furnished for online bidding
1. Scanned copies of the following documents to be up-loaded in pdf. format on the website <http://Jharkhandtenders.gov.in>.
 - i. D. D. towards Tender fee.
 - ii. Duly pledged EMD (Annexure)
 - iii. GST certificate.
 - iv. PAN Card
 - v. Firm's registration certificate/ Registration certificate of MSE of Jharkhand.
 - vi. Certificate issued by Industry Dept. or MNRE for system manufacturing/ Services or Registration Certificate issued from Department of Energy, Govt. of Jharkhand.
 - vii. Audited Balance sheet of last three years of FY 2019-20, 2020-21, 2021-22.
 - viii. Income tax return certificate of last three years AY 2020-21, 2021-22, 2022-23.
 - ix. Test Certificate of Battery & PCU.

2. Scanned copies of the Annexure as per the enclosed formats should be uploaded after converting the same to .pdf format.
 - i) Annexure-1 : Covering letter.
 - ii) Annexure-2 : Information about the bidding firm.
 - iii) Annexure-3 : Declaration by the bidder.
 - iv) Annexure-4 : Annual Turnover.
 - v) Annexure-5 : Net Worth certificate.
 - vi) Annexure-6 : Format for power of attorney for signing of bid.
 - vii) Annexure-7 : Proof of supply/execution of SPV Items/systems in any SNA/Govt. organization/PSU in the last seven years. Attach copy of orders & its satisfactory completion certificate.
 - viii) Annexure-8 : Technical details & make of the Equipments to be supplied.
 - ix) Annexure-10 : Bank Guarantee Format for EMD.
 - x) Annexure-14 : Contact Person for the NIB.
 - xi) Annexure-15 : Checklist for technical bid.
 - xii) Annexure-16& 16 (A) : Mandatory Format for Declaration of Site Survey/Visit along with Geo-tagged photographs of the location.**
3. Duly filled in & digitally signed Price Bid.
4. Uploaded documents of valid successful bidders will be verified with the original before signing the agreement. The valid successful bidder has to provide the originals to the concerned authority on receipt of such letter, which will be sent through registered post.
5. SBD is not to be uploaded by the bidder. The bidder has to give affidavit stating agree / disagree on the conditions in the SBD. The bidders, who disagree on the conditions of SBD, can not participate in the tender.

Section-3

NIB No.: 07/JREDA/CMC/GCRT/23-24

Notice Inviting Bid

Sub: Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required.

Preamble:

"Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required" for short listing of experienced & eligible bidders to whom work shall be allocated for successful execution of the project in a defined time frame.

Part -I:-The Technical Conditions:

The bidder should fulfill the following technical eligibility conditions: -

1. a) The bidder should be a registered company/Firm/ Corporation in India/ Proprietorship Firm/LLP/ (including MSMEs of Jharkhand).
2. The bidder should be a functional organization. To substantiate this claim, the bidder should submit the copy of audited account for last 3 years ending 31.03.2022 or 31.03.2023, whichever is applicable. These audited accounts should be duly certified by the Statutory Auditor with his stamp.
3. Registered Micro, Small & Medium Enterprise (MSE) of Jharkhand should submit the attested copy of Registration given by the Industry Department, Govt. of Jharkhand. The MSE should be functional & having running production unit of the Jharkhand and should fulfill all the criteria as fixed in Jharkhand Procurement Policy 2014. The corporate office or the head office of the MSE must be located in the State of Jharkhand. The manufacturing unit of the MSE must be located in Jharkhand State.
4. The bidder must be in possession of valid test report of battery from any other test centre approved by MNRE/NABL. The valid test certificate should be submitted along with bid.
5. Batteries should fulfil the requirement as per specification given at Technical Specification for Capacity Test, Charge/Discharge efficiency, Self-Discharge as per MNRE requirements and valid test reports with authorization letter of the manufacturer should be uploaded as annexure. The certificate should be in a form of an undertaking letter from the manufacturer complying all the technical specifications of battery. The offered batteries shall be standard make, specifications of any reputed brand approved and certified by MNRE. The bidder has to supply the battery of same make, specification and manufacturing brand for which test reports submitted in the tender otherwise the work order & agreement shall be terminated, the security deposit shall be forfeited, and the bidder firms shall be blacklisted. Bidder may submit test certificate of three makes of batteries of MNRE approved and has to submit the authorization from each of the manufacturer along with the test certificate.
6. The bidder should have valid GST No.
7. The Bidder should confirm that they have the resources and capability to supply the offered quantity within the scheduled period in the form of an undertaking.
8. Bidders have to download the bid document from website (www.jharkhandtenders.gov.in) and submit the scan copy of the cost of the bid document to be submitted in shape of demand draft of requisite value as mentioned in Section-1 (List of Important dates & details of Bids) in favour of "Director, JREDA" on any Indian Nationalized Bank/Scheduled Bank, payable at "Ranchi". The tender fee in original must be submitted from **05.06.2023** and **06.06.2023 by 5.00 PM** in the office of JREDA.
9. Bidders should submit in Part - I (Technical Bid) the earnest money in the form of Bank

Guarantee of requisite value as mentioned in "Section-1 (List of Important dates & details of Bids)". The Bank Guarantee shall be made in favour of "Director, JREDA" payable at Ranchi from any Indian Nationalized bank/Scheduled bank. The bank guarantee shall remain valid for 12 months. Only Original Bank Guarantee shall be accepted. The EMD fee in original must be submitted from **05.06.2023** and **06.06.2023 by 5.00 PM** in the office of JREDA.

10. **Allocation of work:** The lowest rate i.e. L1 received would be the appropriate rate for awarding the work.

Part -II: -The Financial Conditions:

The bidder should fulfill the following financial eligibility conditions: -

1. Financial Eligibility:

I. Turnover Requirement:

- (i) **For General Bidder:** Average Annual financial turnover during the last 3 years, ending 31st March of the previous financial year, should be at least **30%** of the project cost derived from the last three financial years ending on 31.03.2022 or 31.03.2023 on the basis of audited annual accounts.
- (ii) **For MSEs of Jharkhand:** Bidder should have the average Annual Turnover of 10% of the project cost derived from the last three financial years ending on 31.03.2022 or 31.03.2023 on the basis of audited annual accounts.

The certificate should be as per the Performa given at **Annexure-4**

II. Net worth Requirement:

- (i) **For General Bidder:** Bidder should have Positive Net Worth from the last three financial years ending on 31.03.2022 or 31.03.2023 on the basis of audited annual accounts.
- (ii) **For MSEs of Jharkhand:** Bidder should have Positive Net Worth from the last three financial years ending on 31.03.2022 or 31.03.2023 on the basis of audited annual accounts.

Net worth certificate should be as per the Performa given at **Annexure-5**

2. Bidders have to download the bid document from website (www.jharkhandtenders.gov.in) and submit the scan copy of the cost of the bid document to be submitted in shape of demand draft/ Bank Guarantee of requisite value as mentioned in Section-1 (List of Important dates & details of Bids) in favor of "Director, JREDA" on any Indian Nationalized Bank/Scheduled Bank, payable at "Ranchi". The tender fee and EMD in original must be submitted by **06.06.2023 by 05.00 PM** in the office of JREDA.

SECTION-4

NIB No: 07/JREDA/CMC/GCRT/23-24

INSTRUCTIONS TO BIDDERS
Table of Clauses

Clause	A. General	Clause	D. Submission of Bids
1	Scope of Bid	19	Deadline for Submission of Bids
2	Source of Funds		
3	Eligible Bidders	E. Bid Opening	
4	Qualification of the Bidder	20	Bid Opening
5	One Bid per Bidder	21	Process to be Confidential
6	Cost of Bidding	22	Clarification of Bids and Contracting the Employer Examination of bids and
7	Site Visit Determination of Responsiveness	23	
B.	Bidding Documents and Evaluation		
		24	Correction of Errors
8	Content of Bidding Documents	25	Evaluation and Comparison of Bids
9	Clarification of Bidding Documents	26	Preference for Domestic Bidders
10	Amendment of Bidding Documents	F. Award of Contract	
C. Preparation of Bids		27	Award Criteria
11	Language of Bid	28	JREDA Right to Accept any Bid
12	Documents Comprising the Bid	29	Notification of Award
13	Bid Prices	30	Performance Security
14	Currencies of Bid and Payment	31	Advances
15	Bid Validity	32	Corrupt or Fraudulent Practices
16	Earnest Money		
17	Alternative Proposals by Bidders		
18	Sealing and Marking of Bids		

Instructions to Bidders (ITB)

A. General

- 1 Scope of Bid
- 1.1 The JREDA invites bids for the work as described in these documents and referred to as "the works". The name and identification number of the works is provided in the Notice Inviting Bid.
- 1.2 The successful Bidder will be expected to complete the Works by the Intended Completion Date specified in the Part (I)- General Conditions of Contract.
- 1.3 Throughout these documents, the terms "bid" and "tender" and their derivatives (bidder/ tenderer, bid/ tender, bidding/ tendering) are synonymous.
- 2 Source of Funds**

The JREDA has decided to undertake the works of "Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required" through funds from the Government of Jharkhand to be implemented through JREDA.
- 3 Eligible Bidders**
- 3.1 This Invitation for Bids is open to all bidders as defined in the Notice Inviting Bid.
- 3.2 Bidders shall not be under a declaration of ineligibility for corrupt and fraudulent practices by the Central Government, the State Government or any public undertaking, autonomous body, authority by whatever name called under the works.
- 4 Qualification of the Bidder**
- 4.1 All bidders shall provide in Section 3, Forms of Bid and Qualification information, a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary.
- 4.2 All bidders shall include the following information and documents with their bids in Section 3, Qualification Information unless otherwise stated in the Notice Inviting Bid/ITB.
 - a) Copies of original documents defining the constitution or legal status, place of registration, and principal place of business.
 - b) Copy of written power of attorney of the signatory of the Bid for bidding.
 - c) Total monetary value of the similar nature of the works performed for each of the last seven years;
 - d) Experience in works of a similar nature and size for each of the last seven years with certificates from the concerned officer or competent authority.
 - e) Audited reports on the financial standing of the Bidder, such as profit and loss statements and auditor's reports for the last three years along with ITR.
 - f) Authority to seek references from the Bidder's bankers;
 - g) Information regarding any litigation or arbitration during the last seven years in which the Bidder is involved, the parties concerned, the disputed amount, and the matter;
- 4.3 Bids from joint venture are not allowed.

4.4 .A To qualify for award of the Contract, each bidder should meet the following criteria:

a) Annual Turn Over:

For General Bidder: Bidder should have the minimum average Annual Turnover of 30% of the project cost derived from the last three financial years ending on 31.03.2022 or 31.03.2023 on the basis of audited annual accounts.

For MSE of Jharkhand: Bidder should have the average Annual Turnover of 10% of the project cost derived from the last three financial years ending on 31.03.2022 or 31.03.2023 on the basis of audited annual accounts.

The certificate should be issued by CA who has performed audit of accounts with UID no. as per the Performa given at **Annexure-4**

b) Net worth Requirement:

For General Bidder/ MSME of Jharkhand: Bidder should have Positive Net Worth. Net worth certificate should be issued by CA who has performed audit of accounts with UID no. as per the Performa given at **Annexure-5**

c) Experience:

For General Bidder/ MSME of Jharkhand: Bidder should have experience of successfully installation and **operational Maintenance** for **1 year** of at least minimum **20 kWp Single unit** Solar Power Plant in any SNA / Govt. Organization / PSU in the last seven years ending up to date of advertisement of this tender.

The copy of order and performance certificate indicating its successful execution should be enclosed with the checklist as at **Annexure-7**.

4.4.B (a) Each bidder must produce:

- i) PAN.
- ii) An affidavit that the information furnished with the bid documents is correct in all respects; and
- iii) Such other certificates as defined in the Notice Inviting Bid. Failure to produce the certificates shall make the bid non-responsive.

4.4 Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

- i) made misleading or false representations in the forms, statements, affidavits and attachments submitted in proof of the qualification requirements; and/or
- ii) record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures Participated in the previous bidding for the same work and had quoted unreasonably high or low bid prices and could not furnish rational justification for it to JREDA.

5 One Bid per Bidder

5.1 Each Bidder shall submit only one Bid for one work. A Bidder who submits more than one Bid will be disqualified.

6 Cost of Bidding

6.1 The Bidder shall bear all costs associated with the preparation and submission of his Bid, and the JREDA will, in no case, be responsible or liable for those costs.

7 Site Visit

7.1 Site visit is mandatory for participating in the tender and non submission of joint site survey report in prescribed format may lead to rejection of bid.

7.2 The Bidder, at his own cost, responsibility and risk, is encouraged to visit, examine and familiarize himself with the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for supply &

installation of the Works. The costs of visiting the Site shall be at the Bidder's own expense. He may contact the person whose contact details are given in the Notice Inviting Bid.

7.3 Bidders have to submit site visit report in the format of Annexure- **16, 16(a)**

B. Bidding Documents

8 Content of Bidding Documents

8.1 The set of bidding documents comprises the documents listed below, and addenda issued in accordance with Clause 10 of ITB.

1. Notice Inviting Tender
2. Instructions to Bidders
3. Qualification Information
4. Conditions of Contract
5. Specifications
6. Bill of Quantities
8. Form of Bid
9. Form of Bank Guarantee.

8.2 The bidder is expected to examine carefully all instructions, conditions of contract, contract data, forms, terms and specifications, bill of quantities, forms in the Bid Document. Failure to comply with the requirements of Bid Documents shall be at the bidder's own risk. Pursuant to clause 23 hereof, bids, which are not substantially responsive to the requirements of the Bid Documents, shall be rejected.

9 Clarification on Bid Documents and Pre-bid Meeting:

9.1 A prospective Bidder requiring any clarification of the bid documents may notify to the JREDA in writing at the JREDA's address indicated in the Notice Inviting Tenders. JREDA's response will be uploaded in form of corrigendum on our website www.jreda.com.

9.2 The purpose of such a meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

9.3 The bidder is requested to submit any questions in writing or by e-mail so as to reach the JREDA not later than two days before the meeting.

9.4 Any modifications of the bid document listed in Clause 8.1 of ITB, which may become necessary as a result of the pre-bid meeting shall be made by the JREDA exclusively through the issue of an Addendum/Corrigendum pursuant to Clause 10 of ITB on website.

10 Amendment of Bidding Documents

10.1 Before the deadline for submission of bids, the JREDA may modify the bidding documents by issuing addenda/corrigendum.

10.2 To give prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the JREDA shall extend, if necessary, the deadline for submission of bids, in accordance with Clause 19.2 of ITB.

C. Preparation of Bids

11 Language of Bid

11.1 All documents relating to the Bid shall be in the language specified in the Notice Inviting Bid.

12 Documents Comprising the Bid

A. Technical Bid – (Fee/Pre-Qualification/Technical Cover)

1) EMD & Tender Fee

- a) Scanned Copy of Demand draft drawn in favour of "DIRECTOR, JREDA", payable at Ranchi towards Cost of Tender Fee and Earnest Money Deposit as specified in the Notice Inviting Bid.

2) Technical Details & Declaration

- a) Proposed work programme (work method, time schedule and financial flow), description, and charts as necessary (Duly to be signed digitally) to comply with the requirement of the Bidding Document.
- b) Scanned copy of an Affidavit by the Bidder that he/she has accepted the S.B.D.

3) Technical Details of documents

Scanned copies/Prescribed Formats of Documents to be attached in "My Document" in .pdf format file duly digitally signed by the bidder.

- a) PAN Card
- b) GST certificate.
- c) Proof of completion of similar works during the last 7 years and list of similar works in hand in the prescribed formats duly signed by the competent authority of the issuing Department.
- d) List of works for which bids already submitted.
- e) Audited financial Report for the last 3 years (up to 31/3/2022 or 31/03/2023) certified by chartered Accountant.
- f) Annual Turn over Details certified by Chartered Accountant.
- g) Net worth certificate certified by Chartered Accountant.
- h) List of current litigant cases in which the bidder is involved.
- i) An affidavit for non-engagement of related persons.
- j) Proof of test certificates of batteries and latest test certificate should confirm as per MNRE specifications which are available on MNRE website. The valid test certificate should be submitted along with bid.
- k) Authorized address & contact numbers of the bidder as per instruction in the Notice Inviting Bid duly digitally signed.
- l) Undertaking of Bidder that he is able to invest minimum of cash upto 10% as defined in ITB.
- m) Undertaking for validity of bid for 180 days.

B – Financial Bid – (Finance Cover)

- i) Duly Quoted & digitally signed Bill of Quantity (BOQ) in the file supplied by JREDA in .xls format shall be uploaded.
- ii) Declaration by Bidder in the format Section – 6 form of Bid in .pdf format.

NOTE:- a) All the documents should be digitally signed.

12.2 The following documents, which are not submitted with the bid, will be deemed to be part of the bid.

Section Particulars

- i. Notice inviting Tender
- ii. Instruction to the bidders
- iii. Conditions of Contract
- iv. Contract Data
- v. Specifications

13 Bid Prices

13.1 The Contract shall be for the whole Works, as described in Clause 1.1 of ITB.

13.2 The Bidder shall adopt the Item Rate Method as specified in the Notice Inviting Bid only the same option is allowed to all the Bidders.

13.3 All duties, taxes, royalties and other levies payable by the Contractor under the Contract, or for any other cause, shall be included in the rates, prices, and total Bid price submitted by the Bidder.

13.4 The rates and prices quoted by the Bidder shall be fixed for the duration of the Contract and

shall not be subject to adjustment.

- 13.6 Tenderers should quote their rates considering wide variation of site conditions, variation in price of different components during the year 2023-24 and keeping the quantum and quality of work in mind. If JREDA anticipates that rate is abnormally low or high, tender may be cancelled.

14 Currencies of Bid

- 14.1 The unit rates and the prices shall be quoted by the bidder entirely in Indian Rupees (INR).

15 Bid Validity

- 15.1 Bids shall remain valid for a period of 180 (One hundred Eighty) days after the deadline date for bid submission specified in Clause 19 of ITB. A bid valid for a shorter period shall be rejected by the JREDA as non-responsive.

- 15.2 In exceptional circumstances, prior to expiry of the original time limit, the JREDA may request to the bidders for extension of the period of validity for a specified additional period. The request and the bidders' responses shall be made in writing or by cable. A bidder may refuse the request without forfeiting his Earnest Money. A bidder agreeing to the request will not be required or permitted to modify his bid, but will be required to extend the validity of his earnest money for a period of the extension, and in compliance with Clause 16 of ITB in all respects.

16 Earnest Money

- 16.1 The Bidder shall furnish, as part of the Bid, Earnest Money, in the amount specified in the Notice Inviting Bid.

- 16.2 The Earnest Money shall, at the Bidder's option, be in the form of Bank Guarantee/Demand Draft of a scheduled commercial bank, issued in favour of the name given in the Notice Inviting Bid. The Bank Guarantee shall be valid for 12 months or more after the last date of receipt of bids.

- 16.3 Any bid not accompanied by an acceptable Earnest Money, unless exempted in terms given in the Notice Inviting Bid, shall be rejected by the JREDA as nonresponsive.

- 16.4 The Earnest Money of unsuccessful bidders will be returned within 30 days of the end of the Bid validity period specified in Clause 15.1 of ITB.

- 16.5 The Earnest Money of the successful Bidder will be discharged when the Bidder has signed the Agreement and furnished the required Security Deposit.

- 16.6 The Earnest Money may be forfeited:

- a) if the Bidder withdraws the Bid after bid opening during the period of Bid validity.
- b) in the case of a successful Bidder, if the Bidder fails within the specified time limit to
 - i. sign the Agreement; and/or
 - ii. Furnish the required Performance Security and Security Deposit.

17 Alternative Proposals by Bidders

- 17.1 Bidders shall submit offers that comply with the requirements of the bidding documents, including the Bill of Quantities and the basic technical design as indicated in the drawings and specifications. Alternative proposals will be rejected as non-responsive.

D. Submission of Bids

18 Sealing and Marking of Bids

- 18.1 The Bidder shall place the two separate files (File I) marked "Technical Bid" and "Financial Bid" (File -II). The file will have markings as follows:

Technical Bid: To be opened on (date and time of Technical Bid opening as per clause 20.1 of ITB.)

Financial Bid: The contents of the Technical and Financial Bids shall be as specified in clause 12.1 of ITB. All documents are to be signed digitally by the bidder.

- 18.2 The first and second files containing the Technical and Financial Bids shall a) be addressed to the JREDA at the address provided in the Notice Inviting Bid b) bear the name and identification number of the Contract as defined in clause 1.1 of ITB; and c) provide a warning not to open before the specified time and date for Bid opening as defined in clause 20.1 of ITB.

19 Deadline for Submission of Bids

- 19.1 Complete Bids (including Technical and Financial) must be received by the JREDA at the address specified in the Notice Inviting Bid not later than the date and time indicated in the Notice Inviting Bid.
- 19.2 The JREDA may extend the deadline for submission of bids by issuing an amendment in accordance with Clause 10.3 of ITB, in which case all rights and obligations of the JREDA and the bidders previously subject to the original deadline will then be subject to the new deadline.

E. Bid Opening and Evaluation

20 Bid Opening

- 20.1 The JREDA will open the bids received (except those received late). In the event of the specified date for the submission of bids being declared a holiday for JREDA, the Bids will be opened at the appointed time and location on the next working day.
- 20.2 The files containing the technical bid shall be opened. The document marked "cost of bidding document" will be opened first and if the cost of the bidding documents is not there, or incomplete, the remaining bid documents will not be opened, and bid will be rejected.
- 20.3 In all other cases, the amount of Earnest Money, forms and validity shall be announced. Thereafter, the bidders' names and such other details as the JREDA may consider appropriate, will be announced by the JREDA at the opening.
- 20.4 The JREDA will prepare minutes of the Bid opening, including the information disclosed to those present in accordance with Clause 20.3 of ITB.
- 20.5 Evaluation of the technical bids with respect to bid security, qualification information and other information furnished in Part-I of the bid in pursuant to Clause 12.3 of ITB, shall be taken up and completed and a list will be drawn up of the responsive bids whose financial bids are eligible for consideration.
- 20.6 The JREDA shall inform, by email, the bidders, whose technical bids are found responsive, date, time and place of opening as stated in the Notice Inviting Bid. In the event of the specified date being declared a holiday for the JREDA, the bids will be opened at the appointed time and location on the next working day through they or their representative, may attend the meeting of opening of financial bids.
- 20.7 At the time of the opening of the 'Financial Bid', the names of the bidders whose bids were found responsive in accordance with clause 20.5 of ITB will be announced. The financial bids of only these bidders will be opened. The remaining bids will be returned unopened to the bidders. The responsive bidders' names, the Bid prices, the total amount of each bid, and such other details as the JREDA may consider appropriate will be announced by the JREDA at the time of bid opening. Any Bid price which is not read out and recorded, will not be taken into account in Bid Evaluation
- 20.8 The JREDA shall prepare the minutes of the opening of the Financial Bids.

21 Process to be Confidential.

21.1 Information relating to the examination, clarification, evaluation, and comparison of bids and recommendations for the award of a contract shall not be disclosed to bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any attempt by a Bidder to influence the JREDA's process of bidding or award decisions may result in the rejection of his Bid.

22 Clarification of Bids and Contacting the JREDA

22.1 No Bidder shall contact the JREDA on any matter relating to its bid from the time of the bid opening to the time the contract is awarded.

22.2 Any attempt by the bidder to influence the JREDA's bid evaluation, by any means, bid evaluation, bid comparison or contract award decision may result in the rejection of his bid.

23 Examination of Bids and Determination of Responsiveness

23.1 During the detailed evaluation of "Technical Bids", the JREDA will determine whether each Bid (a) meets the eligibility criteria defined in Clauses 3 and 4; (b) has been properly signed; (c) is accompanied by the required securities; and (d) is substantially responsive to the requirements of the bidding documents. During the detailed evaluation of the "Financial Bids", the responsiveness of the bids will be further determined with respect to the remaining bid conditions, i.e., priced bill of quantities, technical specifications and drawings.

23.2 A substantially responsive "Financial Bid" is one, which conforms to all the terms, conditions, and specifications of the bidding documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the bidding documents, the JREDA's rights or the Bidder's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other bidders presenting substantially responsive bids.

23.3 If a "Financial Bid" is not substantially responsive, it will be rejected by the JREDA, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

24 Corrections of Errors

24.1 Bids determined to be substantially responsive, will be checked by the JREDA for any arithmetic errors. Errors will be corrected by the JREDA as follows:

a) where there is a discrepancy between the rates in figures and in words, the rate in words will govern; and

b) Where there is a discrepancy between the unit rate and the line-item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern.

24.2 The amount stated in the Bid will be adjusted by the JREDA in accordance with the above procedure for the correction of errors and shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount, the Bid will be rejected, and the Earnest money shall be forfeited in accordance with Clause 16.6(b) of ITB.

25 Evaluation and Comparison of Bids

- 25.1 The JREDA will evaluate and compare only the bids determined to be substantially responsive in accordance with Clause 23 of ITB.
- 25.2 In evaluating the bids, the JREDA will determine for each Bid the evaluated Bid price by adjusting the Bid price by making correction, if any, for errors pursuant to Clause 24 of ITB.
- 25.3 If the Bid of the successful Bidder is seriously unbalanced in relation to the Engineer's estimate of the cost of work to be performed under the contract, the JREDA may require the Bidder to produce detailed price analysis for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the JREDA may require that the amount of the performance security set forth in Clause 32 of ITB be increased at the expense of the successful Bidder to a level sufficient to protect the JREDA against financial loss in the event of default of the successful Bidder under the Contract. The amount of the increased performance security shall be decided at the sole discretion of the Employer, which shall be final, binding and conclusive on the bidder.
- 25.4 After its evaluation, the JREDA may require that the amount of the performance security set forth in Clause 30 be increased at the expense of the successful Bidder to a level sufficient to protect the JREDA against financial loss in the event of default of the successful Bidder under the Contract. The amount of the increased performance security shall be decided at the sole discretion of the JREDA, which shall be final, binding and conclusive on the bidder.

26 Price Preference

- 26.1 There will be no price preference to any bidder.

F. Award of Contract

27 Award Criteria

- 27.1 Subject to Clause 29 of ITB, the JREDA will award the Contract to the Bidder whose Bid has been determined:
 - i. to be substantially responsive to the bidding documents and who has offered the lowest evaluated Bid price, provided that such Bidder has been determined to be (a) eligible in accordance with the provisions of Clause 3 of ITB, and (b) qualified in accordance with the provisions of Clause 4 of ITB; and as per clause 14 of Notice Inviting Bid (Section-3).

28 JREDA's Right to accept any Bid and to reject any or all Bids

- 28.1 Notwithstanding Clause 27 above, the JREDA reserves the right to accept or reject any Bid, and to cancel the bidding process and reject all bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the JREDA's action without any reason.

29 Notification of Award and Signing of Agreement

- 29.1 The bidder whose Bid has been accepted will be notified of the award by the JREDA prior to expiration of the Bid validity period by email confirmed by registered letter. This letter (hereinafter and in the Part I - General Conditions of Contract called the "Letter of Acceptance") will state the sum that the JREDA will pay to the Contractor in consideration of

the execution and completion of the Works (hereinafter and in the Contract called the "Contract Price").

- 29.2 The notification of award will constitute the formation of the Contract, subject only to the furnishing of a performance security in accordance with the provisions of Clause 30.
- 29.3 The Agreement will incorporate NIT document, Work order & subsequent amendments between JREDA and the successful Bidder. It will be signed by the JREDA and the successful Bidder after the security deposit is submitted.
- 29.4 Upon the furnishing by the successful Bidder of the Performance Security, the JREDA will promptly notify the other Bidders that their Bids have been unsuccessful.

30 Security Deposit:

- 30.1 Successful General bidder shall submit a security deposit @10% of the allotted work order value in the form of Bank Guarantee/DD/FDR valid for one year on or before 15 days from issuing work order. If Bank Guarantee will not be submitted within stipulated period from the date of issue of work order then JREDA shall cancel the work order.
- 30.2 Successful MSME bidders shall be required to deposit only 1% of the allotted work order value in the form of Bank Guarantee/DD/FDR secure as per Jharkhand Procurement Policy.
- 30.3 The Security Deposit shall be refunded / released to the bidder after expiry of 60 days from the actual date of successful completion.
- ~~30.4 The Security Deposit will have to be maintained by the bidder with JREDA till the completion of warrantee period.~~

31. Performance Guarantee:

- 31.1 Successful General bidder
- 31.2 shall submit a performance guarantee @5% of the allotted work order value in the form of Bank Guarantee/DD valid for five years on or before release of any payment.
- 31.3 This Bank Guarantee must include SFMS (Structural Financial Management System) as per JREDA Bank Details Which is as:

Name of Bank: State Bank of India

IFSC Code: SBIN0009010

Branch Details: Ashok Nagar Branch, Ranchi

- 31.4 Successful MSE bidders shall submit a Performance Guarantee @0.5% of the allotted work order value in the form of bank guarantee/DD before release of payment.
- 31.5 The Performance Guarantee will have to be maintained by the bidder with JREDA till the completion of warrantee period.
- 31.6 The Security Deposit/Performance Guarantee shall be submitted in the form of bank guarantee in favour of "Director, JREDA" payable at Ranchi from any Indian Nationalized bank/Scheduled bank.
- 31.7 Non submission of Security Deposit/Performance Guarantee within the time frame, shall lead to forfeiture of EMD and cancellation of LOI/LOA.
- 31.8 If Bidder/MSE unit fails to carry out the work allotted to him as per the provisions of the tender documents then such Bidder/MSE unit may be black listed for future awards of work.

32 Five Years Comprehensive Maintenance Contract & Operation (CMCO):

- 32.1 The SPV Power Plant Contract price includes the provision of 5 years mandatory Comprehensive Maintenance Contract & operation (CMCO). To ensure long term sustainability of the system, the bidder must provide his representatives name, full address, mobile number and photographs to JREDA with one hard copy as well as the names and

contact details of all technicians must also be provided. Failure to do shall invite penalty and action.

- 32.2 The Comprehensive Maintenance Contract & Operation shall include servicing & replacement guarantee for parts and components (such as battery, electronics, Inverter, existing PV modules and other hardware) running, operation and maintenance of SPV Power Plant from the date of installation. Battery should be warranted for a minimum life of 5 years. The contractor has to make suitable arrangement for running, operation and maintenance of SPV Power Plant by deputing electrician and other skilled persons required in the plant 24 x 7 so that SPV Power Plant will be functional every day. The date of CMCO maintenance period shall begin on the date of actual recommissioning of SPV Power Plant /equipment. It is mandatory for the contractor to carry out CMC regularly and submit report including maintenance schedule to JREDA monthly. Failure to submit monthly CMC reports timely shall invite penalty and action.
- 32.3 For any issue related to operation & maintenance, a contact number shall be made available to the concerned departments to resolve immediately, if the bidder do not attempt the rectification of any such defect within three days of communication of such complaint to the bidders, the bidder will be liable for a penalty of Rs. 1000 per day beyond three days of reporting of such complaint. Further if the outage of the plant is more than 15 days continuously, then the 50% PBG amount shall be encased by JREDA and if the outage is exceeding more than 60 days than complete PBG amount shall be encased by JREDA. This will be applicable till 5 years of O&M as per the scope of the RFP. Bidder shall submit monthly CMC report as per the Annexure- 16 with generation data of month within 7 working days of subsequent month.
- 32.4 The Contractor should have sufficient numbers of skilled staff for proper maintenance of solar power plant. The bidder should submit a work plan for implementation of the work and details of person/staff to be deployed for CMCO work.

33 Preventive/Routine Maintenance:

This shall be done by the supplier/contractor at least once in every month and shall include activities such as, cleaning and checking the health of the SPV system, cleaning of module surface, topping up of batteries, tightening of all electrical connections, regular checks to identify any leakage of electricity, changing of tilt angle of module mounting structure, cleaning & greasing of battery terminals and any other activity that may be required for proper functioning of the Solar Photovoltaic Power Plant. The maintenance record should be kept properly and to be submitted at JREDA office time to time. CMC documents should be certified by Beneficiary.

34 Breakdown / corrective Maintenance:

Whenever a complaint is lodged by the user the bidder shall attend the same immediately. It is clarified that effective CMCO means that the bidder should ensure 24 hours smooth working of SPV Power Plant throughout the CMCO period and therefore, if any complaint in this level of service is found by the JREDA officials and if the bidder do not attempt the rectification of any such defect within three days of communication of such complaint to the bidders, the bidder will be liable for a penalty of Rs. 1000 per day beyond seven days of reporting of such complaint.

35 Advances

- 35.1 The JREDA will not provide Mobilization Advance and Advance against the security of

equipment as provided in Part I - General Conditions of Contract.

36 Corrupt or Fraudulent Practices

The JREDA requires the bidders/Contractors to strictly observe the laws against fraud and corruption in force in India, namely, Prevention of Corruption Act, 1988.

37 Timeline/ Completion Period:

The time of completion shall be adhered as per the timeline defined in the table below:

Sr. No.	Work	Completion Period/Start time
1	supply, installation, testing & commissioning of Battery and PCU in all respects in good conditions. as per NIT.	2 Months from issuance of Work Order.
2	CMCO Work	From the date of agreement.

Section-5
General Terms & Conditions
NIB No: 07/JREDA/CMC/GCRT/23-24

Introduction:

The instruction/information contained in the bid documents are for guidance and compliance of the intending bidder. Bidders are advised to obtain clarification from JREDA, if any, prior to submission of their bid, failing which it will be deemed that the stipulation made in the bid documents have been read, understood and are acceptable to the bidder.

Bidder shall bear all costs associated with the preparation and submission of the bid, journeys undertaken by them and subsequent bidding process till the award of the order to successful bidder and the JREDA shall in no case, shall be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

2.0 Scope of work:

The Scope of work includes **“Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required”** in all respects as per the direction of JREDA.

The Scope of Work is as mentioned below: -

Supply Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required”

- i. The contract price includes the provision of 5 years operation and mandatory Comprehensive Maintenance Contract & Operation (CMCO) to ensure long-term sustainability of the system. The contractor should provide his representative's name, full address, mobile number, and photographs to JREDA with one hard copy.
- ii. The Operation and Maintenance shall include ensuring operation of system on day to day basis. The system should be operational from evening to morning with full illumination. The contract shall include ensuring servicing & replacement guarantee for parts and components (such as battery, electronics, Inverter, PV modules and other hardware of SPV SPP for five years. Battery should be warranted for a minimum life of 5 years. The date of CMC shall begin from the date of issuance of work order for CMCO contract. It is mandatory for the contractor to carry out CMC regularly and submit report to JREDA on monthly basis.
- iii. **Preventive/Routine Maintenance:**
This shall be done by the Contractor twice in a months and shall include activities such as, cleaning and checking the health of the SPV system, cleaning of module surface, topping up of batteries, tightening of all electrical connections, regular checks to identify any leakage of electricity, changing of tilt angle of module mounting structure, cleaning & greasing of battery terminals and any other activity including earth resistance maintenance that may be required for proper functioning of the SPV SPP. The maintenance record should be kept properly and to be submitted at JREDA office time to time.
- iv. **Breakdown/Corrective Maintenance**
Contractor shall ensure 24 hours smooth operation of Solar Power Plant throughout the CMC period by attending breakdown/routine maintenance immediately. if any complaint regarding system service is found by the JREDA officials and if the Contractor do not attend the rectification of any such defects within three days of communication

of such complaint to the contractors, the Contractor will be liable for a penalty of Rs.1000 per day beyond seven days of reporting of such complaint.

v. Deployment of Manpower/Equipment

Successful bidder shall deploy following manpower at all times for smooth operation of total 400 KWp (200kWp + 200 KWp) Grid Connected Rooftop Solar Power Plants installed at Rinpass, Ranchi, Jharkhand:

- vi. Buy back of existing 2 Set of battery bank (2700Ah, 360V Each) along with inter cell connectors and stack box & 2 No. 200 KVA PCU, at SPV Plant location at **Rajendra Institute of Medical Sciences (RIMS), Ranchi, Jharkhand** on the basis of as is where is including transportation etc.

3.0 Bid documents:

Tender documents shall comprise of all the documents mentioned in this Bid. In addition to these any other documents/amendments/revisions or instructions issued by JREDA from time to time to bidders till due date of opening of the offers, shall also be deemed to be integral part of the bid document.

4.0 Price:

The bidder shall quote his price as per schedule of items of work. The contract price rates shall be firm and binding and shall not be subject to any variation except for statutory variation of taxes and duties during the contractual completion period. **The price shall be exclusive of GST & inclusive of all taxes & charges and 5 years Comprehensive Maintenance Contract & Operation (CMCO) as on the opening date of tender.** The price shall also include designing, manufacturing, inspection, supply, transport, insurance, handling etc. All applicable charges for taking necessary clearance such as commercial tax, road permit etc. wherever required are also deemed to be included in the contract price.

5.0 Inspection of the factory and Tests:

JREDA reserves the right to inspect manufacturer's works/factory to ascertain the capability/availability of necessary equipment and infrastructure required for manufacture of the items offered. JREDA shall have the access and right to inspect the work or any part thereof at any stage and to test the goods to confirm their conformity to the technical specifications. Successful bidder shall inform JREDA at least 15 days in advance of schedule dispatch for technical sample audit.

6.0 Payment terms and conditions:

Project Cost will be divided into Supply, Installation as one part and CMC as second part. Rate of second part will be 20 % of complete Project cost (1st Part+ 2nd Part). In case agency fails to comply CMC as per work order i.e., fails to submit CMC report or fails to attend compliance then after two notice or two months whichever is earlier, 2nd part of work order will be transferred to any of the technically qualified agency under that NIB on quotation basis and the performance bank guarantee of the agency will be forfeited along with necessary action as per prevailing rules. Subject to any deduction which JREDA may be authorized to make under this contract, the contractor shall be entitled to payment as follows:

- (a) 90% of the 1st Part of Project cost shall be paid after supply and delivery of goods in full and in good condition as certified by Consignee and/or JREDA Officials after submission of following documents:
- i. Original Commercial invoice raised from the state of Jharkhand for the supply made in triplicate (1+2).
 - ii. Copy of duly raised delivery challan / transportation challan / lorry receipt/dispatch clearance.
 - iii. Duly filled Annexure-12 should be submitted in three sets (one for Consignee record, one for JREDA Hq. and one for JREDA's field Executive Engineer).
 - iv. Photographs of all the equipment (materials) at destination with signature & seal of Consignee/JREDA Officials. This record should be kept in the office of

- Consignee for verification.
- v. Submission of the Insurance Documents and Warranty Certificates of the Components.
- (b) 10% of the 1st Part of Project cost shall be paid after satisfactory performance of warranty period of complete system as required in all respects in good conditions as certified by JREDA Officials after submission of following documents:
- i. Copy of Original Commercial invoice raised at the time of supply in triplicate (1+2).
- (c) For CMC: 20% each year of 2nd Part can be release against CMC for Five year. The Payment shall be released after submission of following documents:
- i. Copy of Original Commercial invoice raised at the time of supply in triplicate (1+2).
 - ii. Submission of monthly reports of CMC undertaken by the manufacturer as per Annexure-13.
- Payment against CMC (2nd Part) can be also released after submission of duty pledged DD/BG/FDR/TDR of 4% for each year valid up to CMC period. The BG/FDR will be release after submission of CMC documents in prescribed format

7.0 Dispatch Instructions:

All items/equipments shall be subject to Pre-Dispatch Inspection (PDI) by JREDA or its authorized representatives at the manufacturing site before their dispatch. The manufacturing site must have sufficient testing facilities. The manufacturer will submit test report with regard conformity to technical specifications and details of materials in prescribed format for the items to be dispatched to work site of JREDA. However, equipments will be dispatched from the manufacturing site only after the receipt of "Dispatch Clearance" from JREDA after acceptance of test report. No consignment shall be dispatched without the receipt of dispatch clearance from JREDA. No PDI shall be done at any site other than the concerned manufacturing site. Successful bidders have to arrange necessary equipments for testing the materials to be supplied during the pre-dispatch inspection by JREDA at their manufacturer's unit. Failure to fulfill the PDI conditions shall lead to cancellation of work order and forfeiture of security deposit.

Supply, Installation & Commissioning for the above work must be completed in all respect within **30 days** from the date of issue of the work order including Pre-Dispatch Inspection (PDI) of the materials.

8.0 Liquidated Damages for Delay in Completion & CMCO:

If the supplier fails in the due performance of the contract to deliver any part of the equipment or complete the work within the time fixed under the contract or any extension thereof granted to him by JREDA and/or to fulfill his obligations in time under the contract, he shall be liable to pay to JREDA @0.5% per week maximum up to 10% of work value delayed beyond contract period. The same will be applicable if monthly CMC report will not be submitted within a week of due date.

9.0 Risk & Cost:

If the contractor fails to complete the awarded work from the scheduled date of completion then JREDA will be at liberty to cancel the said work order and will get the full or part of left over work to be completed by way of engaging alternate contractor and completion of the said work shall be got completed at risk & cost of the failed contractor and failed contractor shall be liable to pay all the dues to JREDA.

10.0 Insurance:

The supplier shall arrange for transit and erection insurance of the materials & equipments for setting up of Solar Photovoltaic System. **The supplier shall also arrange for insurance of materials & equipments up to CMCO period.** In case of any theft or damage of equipment during CMC period the same will be responsibility of supplier to get it rectify at their own cost.

11.0 Assignment/ Sub-letting:

The Manufacturer shall not assign or sublet, manufacture, shop testing, packing & forwarding, transportation, transit insurance, supply in whole or part, and its obligations to any third party to perform under the order/contract.

In the event the manufacturer contravenes this condition, JREDA reserves the right to reject the equipment/work contract and procure the same from elsewhere at manufacturer's risk and cost. The Manufacturer shall be solely liable for any loss or damage which JREDA may sustain in consequence or arising out of such replacing of the contract work.

12.0 Completeness of Tender:

All fittings, assemblies, accessories, hardware items etc. & safety and protection devices as required shall be deemed to have been included in the tender, whether such items are specifically mentioned in the BoM or not.

13.0 Compliance with Regulations:

The supplier/contractor shall comply with all applicable laws or ordinances, codes approved standards, rules and regulations and shall procure all necessary municipal and/or other statutory bodies and government permits & licenses etc. at his own cost. The contractor shall leave the purchaser, Director, JREDA harmless as a result of any infractions thereof.

14.0 Agreement:

The successful qualified suppliers shall have to enter into an agreement in the office of the Director, JREDA, in prescribed format before commencement of supply within 7 (Seven) days with required Security Deposit.

15.0 Income Tax:

Without prejudice to the obligations of the supplier under law, any income tax which JREDA may be required to deduct by law/statute, shall be deducted at source and shall be paid to income tax authorities on account of the supplier. JREDA shall provide the supplier a certificate for such deductions of tax.

16.0 Training Program, After Sales Service and Availability of Spare Parts:

16.1 The responsibility of organizing training program will rest on the successful bidder. The training program will be organized in consultation with JREDA/Consignee. The training program will focus on operation and maintenance of the system. Printed leaflet/literature should be made available in Hindi by the Supplier regarding the operation and maintenance of their Solar Power Plant.

16.2 The Supplier shall depute authorized Service Engineer within 7 days from the date of the intimation of fault, and establish sufficient inventory of spares in the State in consultation with JREDA to provide satisfactory and uninterrupted services during the warrantee period.

17.0 Force Majeure conditions:

In the event of either party being rendered unable by force majeure to perform any obligation required to be performed by them under this agreement, relative obligation of the party affected by such force majeure shall be treated as suspended during which force majeure condition last.

The term force majeure shall have herein mean riots (other than among the contractor's employee), civil commotion, war (whether declared or not), invasion, act of foreign enemies hostilities, rebellion, insurrection, military coup to usurp power, act of god such as earthquake, lightening, floods, fires not caused by contractor's negligence and other cause which the contractor has no control and accepted as such by the Director, JREDA, whose decision shall be final and binding.

If the work is suspended by force majeure conditions lasting for more than 45 days, the purchasers shall have the option of cancelling this contract in whole or part thereof, at its discretion. The contractor shall not claim for compensation for force majeure conditions.

18.0 Cancellation of Work Order:

JREDA will be at liberty to terminate/blacklist in part or full the awarded contract and / forfeit security deposit and/or performance guarantee without prejudicing its rights and affecting the obligations of the Contractor by giving 15 (Fifteen) days notice in writing in

the following events:

- (a) If the contractor/supplier is found defaulter for delayed supply, installation & commissioning, or failure to deliver satisfactory performance or supply of substandard materials.
- (b) If the contractor/supplier fails to comply with the provision(s) of the contract including the responsibilities to fulfill the 5 years CMC as per the provisions mentioned.
- (c) If the Contractor/vendor is involved in any action of moral turpitude.
- (d) While taking decisions for blacklisting of the bidder, his past performance shall also be considered.

19.0 Jurisdiction of the Court:

All disputes would be settled within Ranchi jurisdiction of court of law only.

Section-6
Technical Specification
NIB No: 07/JREDA/CMC/GCRT/23-24

A. Technical Specification of existing Stand-alone SOLAR PV Power Plant

Introduction:

Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required:

Technical description

S. No.	Description	Specifications
1	Battery Bank	02 Nos, 360V, 2700 AH Lead acid Type AGM-VRLA or tubular Gel
2	Power Conditioning unit including MPPT, Charge Controller, Inverter, and Data Acquisition System	02 Nos 200 KVA PCU.
3	Control room	Rajendra Institute of Medical Sciences (RIMS) Project Building (200 kWp), Rajendra Institute of Medical Sciences (RIMS) Project Building (200 kWp)
4	Structures Cables, Junction Boxes Lightning arrestors, Earthing etc. Other Components	As per Rajendra Institute of Medical Sciences (RIMS) Project Building (200 KVA), Rajendra Institute of Medical Sciences (RIMS) Project Building (200 KVA) System Capacity at site.

Detailed Specifications of components:

Power Conditioning Unit

The Power Conditioning Unit (PCU) mainly comprises MPPT, Solar Charge Controller and a three phase bi-directional inverter.

The MPPT Charger designed to provide the necessary DC/DC conversion to maximize the power from the 400 KVA SPV array to charge the each of 360V, 2700AH battery bank. The charge controller should be equipped with necessary software that allows precise charging of the batteries bank. Many protection features should be included to ensure that no abnormal or out of range charge conditions are encountered by the battery bank. The system should incorporate a front panel

display with LEDs and a switch to indicate the "operational status" and "fault status" of the system, reset system faults and implement various operating modes.

The microprocessor- controlled inverter should incorporate Pulse Width Modulation (PWM) technology and should incorporate all the desired safety features.

Important features/protections required in the PCU:

- MPPT
- Array ground fault detection.
- Automatic fault conditions reset for all parameters like voltage, frequency and/or black out.
- MOV type surge arrestors on AC & DC terminals for over voltage protection from lightning induced surges.
- PCU operation from 5⁰ to 55⁰ C.
- All parameters should be accessible through an industry standard communication link.
- Over load capacity (for 30 sec.) should be 150% of continuous rating.

Operating Parameters	Specifications
Output Voltage	230/415Volts ± 1% three phases, 4 wire output. Nominal voltage could be adjusted ± 5% via system set points.

Output Frequency	50Hz \pm 0.5% during standalone inverter operation. Inverter to follow generator frequency up to \pm 3 Hz of the nominal output frequency during parallel operation.
Continuous Rating	20 KVA
Surge Rating	Up to 150% of the continuous rating for a minimum of 30 seconds.
Waveform	Sine wave output
THD	Less than 4%
Efficiency	At 25% load > 85% At 50% load > 90% At 75 % load and above > 92%
Internal Protection System	<ul style="list-style-type: none"> • Inverter continuous overload • Short circuit protection • Over/under AC voltage protection • Over/under frequency protection • Over/under battery voltage protection
Alarm Signals	Via system fault relay (potential free contact)
Front Panel Display	<ul style="list-style-type: none"> • Instantaneous per phase Power, voltage, pf, and frequency • Battery voltage, current, • Solar charge current and ambient temperature • Solar radiation • Accumulated output KWHrs.
Front Panel Metering	<ul style="list-style-type: none"> • Battery Volt Meter • Battery Amp Meter • Solar Amp Meter
Front Panel Controls	<ul style="list-style-type: none"> • Emergency Stop Button • Grid Auto Manual Bypass Switch
Front Panel Indicators	<ul style="list-style-type: none"> • Inverter On Line and Grid On Line • Control Power Supply OK • System Fault
Circuit Breakers	<ul style="list-style-type: none"> • Grid Input • Battery Input • Solar Input (with shunt trip)
Earthing Provisions	AC bypassing to earth on inverter and DC inputs

DATA Logging	
Operating Parameters	Specifications
Computer Ports	RS232 referenced to ground (non-isolated).
System Features	<ul style="list-style-type: none"> • Adjustable logging period from 60 second averages to 24 hours daily logs • Storage capacity of up to 6 days at 60 minute logs • Time and date stamped log entries • Time and date annotated fault log, holding the fault description and operating statistics • View and change system set point configurations remotely • Bulk log download for immediate data importation into a

	Spreadsheet
Logging Attributes	<p>System summations</p> <ul style="list-style-type: none"> • Site kWh • Inverter input & output kWh • Grid/Gen set kWh • Battery input & output kWh • Solar kWh <p>System Parameters</p> <ul style="list-style-type: none"> • Grid/Gen set kW, voltage, pf, frequency • Inverter kW, voltage, pf, frequency • Battery current • Battery voltage • Ambient temperature • Solar charge current • Solar radiation
Environmental	
Operating Temperature Range	5-50 degrees Celsius
Humidity	0-90% non-condensing
Enclosure	IP30

Battery Bank

A 360V, 2700Ah Battery Bank has been used in the system for storing the generated energy. The battery bank in the offered SPV systems is maintenance free type for SPV application Lead Acid type AGM-VRLA.

- The batteries are suitable for recharging by means of solar modules via solar charge regulators.
 - The self-discharge of battery should be as per BIS specs.
 - The Amp Hr. charge efficiency should be more than 90%
- Description of the subsystems for replacement.

Technical Specifications for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required:

Technical specifications of the following subsystems which shall be replaced by the agency are:

S. No.	Description	Specifications
1	Battery Bank	<p>Two set of 360 V, 2700 Ah AGM-VRLA battery bank along with inter cell connectors and stack box, at Ranchi (Jharkhand).</p> <ul style="list-style-type: none"> • The batteries should be suitable for recharging by means of solar modules via solar charge regulators. • The self-discharge of battery should be as per BIS specs. • The Amp Hr. charge efficiency should be more than 90%
2	Any other components for smooth operation of Solar Plant	As per site condition

Spare parts

Bidder should keep stock of essential spares (Control cards, PCB's, Switches fuses etc.) at their nearest service center and/or at each site at their cost for 5 years maintenance. A recommended list of such spares should be provided by JREDA.

Installation and re-commissioning

- Detailed project execution plan should be submitted along with the offer.
- The bidder should quote for installation and commissioning.
- The bidder is responsible for arranging all the accessories and measuring instruments required to properly commission the system.

Format for Covering Letter

NIB No.: 07/JREDA/CMC/GCRT/23-24

(To be submitted in the official letterhead of the company)

To,

The Director,
Jharkhand Renewable Energy Development Agency
3rd Floor, S.L.D.C. Building,
Kusai Colony, Doranda,
Ranchi - 834002.

Sub: Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required:

Sir,

We are hereby submitting our offer in full compliance with the terms and condition of the above NIB No..... We have submitted the requisite amount of Tender Fee in the form of Demand Draft & "Earnest Money" in the form of Bank Guarantee, valid for twelve months.

The tender is uploaded on www.jharkhandtenders.gov.in as per the requirement of the website separately Technical Bid & Financial Bid.

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

Note: MSME bidders of Jharkhand must submit necessary documents for claiming exemption of EMD and Bid fee.

Information About The Bidding Firm
NIB No.: 07/JREDA/CMC/GCRT/23-24

(To be submitted in the official letter head of the company)

SL. No.	Particulars	
1.	Name of the Bidder	
2.	Address of Bidder with Telephone, Fax, email	
3.	Address of the Registered Office	
4.	Address of the works	
5.	GPS Co-ordinate of Registered Office	
6.	GPS Co-ordinate of Factory Campus	
7.	Name & Designation of Authorized Signatory for Correspondence (Attach Power of Attorney as per Annexure-6)	
8.	Nature of Firm (Proprietorship/Partnership /Pvt. Ltd./Public Ltd. Co./Public Sector)	
9.	Permanent Account Number (PAN) (Attach proof)	
10.	Firm's Registration Number (Attach proof)	
11.	GST Number (Attach proof)	
12.	Details of in-house testing facility (Attach Proof)	
13.	Office/ Dealer and Service network in Jharkhand (Give details)	
14.	Particulars of Earnest Money and Bid fee	
15.	Place where Materials will be Manufactured	
16.	Place where Materials will be Available for Inspection	
17.	Other details and remarks, if any	

Yours faithfully,

(Signature of Authorized Signatory)

Name :
 Designation :
 Company seal :

(Separate sheet may be used for giving detailed information duly signed)

Declaration by the Bidder

NIB No.: 07/JREDA/CMC/GCRT/23-24

(To be submitted in the official letter head of the company)

I/We _____ (here in after referred to as the Bidder) being desirous of tendering for the rate contract for work under the above mentioned tender and having fully understood the nature of the work and having carefully noted all the terms and conditions, specifications etc. as mentioned in the tender document, DO HEREBY DECLARE THAT

1. The Bidder is fully aware of all the requirements of the tender document and agrees with all provisions of the tender document.
2. The Bidder is capable of executing and completing the work as required in the tender.
3. The Bidder accepts all risks and responsibilities directly or indirectly connected with the performance of the tender.
4. The Bidder has no collusion with any employee of JREDA or with any other person or firm in the preparation of the bid.
5. The Bidder has not been influenced by any statement or promises of JREDA or any of its employees, but only by the tender document.
6. The Bidder is financially solvent and sound to execute the work.
7. The Bidder is sufficiently experienced and competent to perform the contract to the satisfaction of JREDA.
8. The information and the statements submitted with the tender are true.
9. The Bidder is familiar with all general and special laws, acts, ordinances, rules and regulations of the Municipal, District, State and Central Government that may affect the work, its performance or personnel employed therein.
10. The Bidder has not been debarred/blacklisted by any SNA/ Government Dept. /PSU.
11. This offer shall remain valid for Six months from the date of opening of the tender.
12. The Bidder gives the assurance to execute the tendered work as per specifications terms and conditions.
13. The Bidder confirms the capability to supply and install required no. of systems per month.
14. The Bidder accepts that the earnest money be absolutely forfeited by JREDA if the Bidder fails to undertake the work or sign the contract within the stipulated period.

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

Format For Financial Requirement – Annual Turnover**NIB No.: 07/JREDA/CMC/GCRT/23-24**

[On the letterhead of Bidding Company]

To,

The Director,
 Jharkhand Renewable Energy Development Agency
 3rd Floor, S.L.D.C. Building,
 Kusai Colony, Doranda,
 Ranchi - 834002

Dear Sir,

Sub: Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required:

We certify that the Bidding Company had an average Annual Turnover of Rs. -----
 ----- -- based on audited annual accounts of the last three years ending 31.03.2022 or 31.03.2023.

Sl. No.	Financial Year	Turnover (in Rupees)
1	2019-20	
2	2020-21	
3	2021-22	
	Average Annual Turnover	

UID No.:

Authorised Signatory
(Power of Attorney holder)

Statutory Auditor
(Stamp & Signature)

Date:

Format For Financial Requirement - Net Worth Certificate**NIB No.: 07/JREDA/CMC/GCRT/23-24**

[On the letterhead of Bidding Company]

To,

The Director,
 Jharkhand Renewable Energy Development Agency
 3rd Floor, S.L.D.C. Building,
 Kusai Colony, Doranda,
 Ranchi - 834002

Dear Sir,

Sub: Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required:

This is to certify that Net worth of _____ {insert the name of Bidding Company}, as on 31st March 2022 or 31st March 2023 is Rs _____. The details are appended below.

Particulars	Amount (In Rs.)
Equity Share Capital	
Add: Reserves	
Subtract: Revaluation Reserve	
Subtract: Intangible Assets	
Subtract: Miscellaneous Expenditure to the extent not written off and carried forward losses	
Net Worth as on 31 st March 2022 or 31 st March 2023	

UID No.:

Authorised Signatory
(Power of Attorney holder)

Statutory Auditor
(Stamp & Signature)

Format of Power of Attorney for Signing Bid

**NIB No.: 07/JREDA/CMC/GCRT/23-24
POWER OF ATTORNEY**

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.)

Know all men by these presents, we (name and address of the registered office) do hereby constitute, appoint and authorize Mr. / Ms. (name and residential address) who is presently employed with us and holding the position of as our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our bid for all tenders notified by Jharkhand Renewable Energy Development Agency during FY-2023-24, including signing and submission of all documents and providing information / Bids to Jharkhand Renewable Energy Development Agency, representing us in all matters before [Insert Name], and generally dealing with Jharkhand Renewable Energy Development Agency in all matters in connection with our bid for the said Project.

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

For
_____Signature

Accepted by

..... (Signature)

(Name, Title and Address of the Attorney)

Note: The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, lay down by the applicable law and the charter documents of the executants (s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.

Details of Orders Received and Executed in Last 7 Years**NIB No.: 07/JREDA/CMC/GCRT/23-24**

Details of Orders Received & Executed by the Manufacturer/Supplier for NIB-07/JREDA/CMC/GCRT/23-24 from SNA/ Govt. Organization during Last Seven Years.

SL. No.	Name of Agency/ Organization	Purchase Order No., Date & Ordered Qty.	Capacity of SPV Power Plant	Delivery Schedule	Qty. Supplied Within Delivery Schedule	Qty. Supplied After Delivery Schedule	Date of Full Supply	Date of Performance certificate released

Yours faithfully,

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

Note:

- (a) Attach Photocopies of Work Orders
- (b) Attach Photocopies of Certificate of Satisfactory Performance Issued by Concerned Nodal Agency/PSU/ Govt. Organization
- (c) Separate sheet may be used for giving detailed information in seriatim duly signed. This bid Performa must be submitted duly signed in case separate sheet is submitted.

Annexure-7 (b)

(PERFORMANCE CERTIFICATE ON THE OFFICIAL LETTER HEAD OF CONCERNED DEPARTMENT WITH SEAL AND SIGN BY AUTHORIZED SIGNATORY)

CERTIFICATE OF PERFORMANCE - SPV POWER PLANTS

This is to certify that Name of Bidder, Address of Registered Office has successfully completed the works of Comprehensive Maintenance Contract & Operation ofNos. SPV power plants (.....Scheme) against various Sanction of Name of Agency at various locations in State, as per following details:-

Sl. No.	Capacity of solar power plants	Year & Scheme	Total no. system	Remarks

This workmanship and performance of the above installed systems are found satisfactory and are in successful operation.

Seal & Sign (Authorised Signatory)

Format for Technical Details
NIB No.: 07/JREDA/CMC/GCRT/23-24

Sub: Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required:

S. N	Particulars	Details	Make
1	Make of Battery and Origin		
2	Type of Battery		
3	No. of Battery		
4	Each Battery Voltage		
5	Each Battery Ah		
6	Battery Bank rating (Voltage & Ah)		
7	Make of PCU and Origin		
8	Rating (KVA)		

Undertaking

- We agree to supply, installation & commissioning, renovation, the Power Plant as per NIT specifications.
- We agree to give performance guarantee as specified and to abide by the scope of the guarantee as prescribed under the tender document.
- We agree to operate as per the terms & conditions of the tender.

We undertake to supply quality products for promoting energy efficiency in the era of lighting systems.

(Signature of Authorized Signatory with Name Designation & Company Seal)

Filling Instructions:

- During the Guarantee period JREDA/users reserve the right to cross check the performance of the systems for their minimum performance levels specified in the MNRE specifications.

Technical Detail Form
NIB No.: 07/JREDA/CMC/GCRT/23-24
 (To be submitted in the official letter head of the company)

Warrantee Card

1.	Name & Address of the Manufacturer/ Supplier of the System	
2.	Name & Address of the Purchasing Agency	
3.	Date of Supply of the System	
4.	Details of Battery	
	(a) Name of the Manufacturer	
	(b) Make	
	(c) Model	
	(d) Batch/Serial No(s).	
	(e) Month & Year of Manufacture	
	(f) Rated V & AH Capacity at C/20 or C/10 Rated at 27 ⁰ C	
	(g) Guarantee Valid Up To	
5.	Designation & Address of the Person to be Contacted for Claiming Warrantee Obligations	

(Signature of Authorized Signatory with Name Designation & Company Seal)

Filling Instructions:

1. The Guarantee card to be supplied with the system must contain the details of the system supplied as per format given above.
2. During the Guarantee period JREDA/users reserve the right to cross check the performance of the systems for their minimum performance levels specified in the MNRE specifications.

Price Bid

NIB No.: 07/JREDA/CMC/GCRT/23-24

Sub: Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required:

S.No	Name of Work	Qty.	Unit	Rate excluding of GST & including other. Taxes and charges (Rs.)	Total Amount
1	Supply & installation, of 01 set of PCU & battery bank along with inter cell connectors and stack box, at each SPV Plant location given below: i. Rajendra Institute of Medical Sciences (RIMS), Project Building (200 kWp) ii. Rajendra Institute of Medical Sciences (RIMS), Project Building (200 kWp)	02	Set		
2	Other components as required at i. Rajendra Institute of Medical Sciences (RIMS), Project Building (200 kWp) ii. Rajendra Institute of Medical Sciences (RIMS), Project Building (200 kWp)	02	Set		
3	Comprehensive Maintenance Contract & Operation (CMCO) of 400 KWp Grid Connected Rooftop Solar Power Plants installed at Rinpass, Ranchi: i. Rajendra Institute of Medical Sciences (RIMS), Project Building (200 kWp) ii. Rajendra Institute of Medical Sciences (RIMS), Project Building (200 kWp)	05	Years		
4	Buy back of existing set of PCU & battery bank along with inter cell connectors and stack box, at SPV Plant location at i. Rajendra Institute of Medical Sciences (RIMS), Project Building (200 kWp) ii. Rajendra Institute of Medical Sciences (RIMS), Project Building (200 kWp)	02	Set		
Total (1+2+3-4)					
In Words					

- 1 Above quoted price for are complete in all respect as per Technical Specifications exclusive of GST and inclusive of all Central/State/Local applicable taxes & duties, packing, forwarding, transit insurance, loading & unloading, transportation & other charges etc. FOR destination in Jharkhand and inclusive of installation, testing, commissioning, operation & maintenance for five years, performance testing and training.
- 2 Certified that rates quoted for above mentioned all components are as per specifications, terms & conditions mentioned in the bid document.
- 3 Price should be quoted in complete numeric figure and words.

(Signature of Authorized Signatory)
Name:
Designation:
Company Seal:

Format for Submitting Bank Guarantee for Earnest Money
NIB No.: 07/JREDA/CMC/GCRT/23-24

(To be submitted in Rs. 100/- Non-Judicial Stamp Paper to be purchased in the name of the issuing bank)

To,

The Director,
Jharkhand Renewable Energy Development Agency
3rd Floor, S.L.D.C. Building,
Kusai Colony, Doranda,
Ranchi - 834002.

WHEREAS (Supplier's name) (hereinafter referred to as "Supplier"), a company registered under the Companies Act, 1956 and having its registered office at is required to deposit with you, the Purchaser, by way of Earnest Money Rs. (Rupees only) in connection with its tender for the work with reference to Notice Inviting Bid (NIB) No. dated as per specification and terms and conditions enclosed therein.

WHEREAS the Supplier as per "Notice Inviting Bid, point no. 3 Earnest Money" has agreed to establish a Bank Guarantee in Your favour through us valid up to.....(date) instead of deposit of earnest money in cash.

WHEREAS you have agreed to accept a Bank Guarantee from us in instead of earnest money in cash from the Supplier.

1. We (Bank) hereby agree and undertake to pay you on demand the said amount of Rs. (Rupees only) without any protest or demur in the event the Supplier/Tenderer after submission of his tender, resiles from or withdraws his offer or modifies the terms and conditions thereof in a manner not acceptable to you or expresses his unwillingness to accept the order placed and/or letter of intent issued on the Supplier/Tenderer for the work under "Notice Inviting Bid Ref. No.:" **07/JREDA/CMC/GCRT/23-24**".
2. Your decision as to whether the Supplier/Tenderer has resiled from or has withdrawn his offer or has modified the terms and conditions thereof in a manner not acceptable to you or has expressed his unwillingness to accept the order placed and/or Letter of Intent issued by you on the Supplier/Tenderer for the work under "Notice Inviting Bid Ref. No. : **07/JREDA/CMC/GCRT/23-24** in this regard, shall be final and binding on us and we shall not be entitled to question the same.

3. Notwithstanding anything contained in the foregoing, our liability under this Guarantee shall be restricted to Rs. (Rupees only).
4. This Guarantee shall remain valid and in full force and effect up to (Date) and shall expire thereafter unless an intimation is given to the Bank by you earlier in writing discharging us from our obligation under this Guarantee.
5. We shall not revoke this Guarantee during its currency except by your consent in writing.
6. This Guarantee shall not be affected by any change in the constitution of the Supplier/Tenderer or yourselves or ourselves but shall ensure to your benefit and be enforceable against our legal successors or assignees by you or your legal successors.
7. Notwithstanding anything contained herein above unless a demand or claim under this Guarantee is made on us in writing within six months from the date of expiry of this Guarantee we shall be discharged from all liabilities under this Guarantee thereafter.
8. We have power to issue this Guarantee under our Memorandum and Articles of Association and the undersigned who is executing this Guarantee has the necessary power to do so under a duly executed Power of Attorney granted to him by the Bank.

Signed and Delivered

For and on behalf of Bank.

(Banker's Name)

Name of Bank Manager:

Address

.....

Certificate of supply, installation & commissioning of the work as Proof of Compliance by the Contractor

NIB No.: 07/JREDA/CMC/GCRT/23-24

The details of materials for **Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required:**

1. Name of Plant:-
2. Nos. & Capacity of Batteries:.....
3. Nos. of Junction Box:

Signature & Seal of the contractor

Certificate of JREDA Representative

Certified that above mentioned materials have been inspected as per the specification and above materials handed over to the Consignee.

Signature & Seal of Project In-charge

Format for Monthly O&M and CMC Report**NIB No. 07/JREDA/CMC/GCRT/23-24**

[On the letterhead of Bidding Company]

To,

The Director,
 Jharkhand Renewable Energy Development
 Agency 3rd Floor, S.L.D.C. Building,
 Kusai Colony,
 Doranda, Ranchi –
 834002.

Dear Sir,

Sub: Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required:

Date of Installation.....
 JREDA Dispatch Order No..... Dated.....
 Month of OMC and CMC.....
 Date of Visit.....

S. N.	Place of Installed System	System Details		CMC activities undertaken by Technician	Remarks
		Solar PV Module			
		Battery			
		PCU /Inverter			
		Any other Component			

Enclosed:
 (Tick the enclosed Documents)

- | | |
|--|--------|
| 1. Daily Generation Details | Yes/No |
| 2. Scan Copy of Site Logbook Registers | Yes/No |
| a. Module Cleaning Register | |
| b. Site Breakdown Register | |

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

Format for Daily Generation Details

Format for Site Logbook Registers
(Along with Annexure 13)

Format: 1

Format for Module Cleaning Register				
Date	No. of Cycle	No. of Module Cleaned	Cleaned By	Remark

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

Format: 2

Format for Site Breakdown					
Date	Time	Total Hrs. of Breakdown	Breakdown Type (Fault Message displayed on Screen)	Attended By	Remark

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

**Contact Person for the NIB
NIB No.: 07/JREDA/CMC/GCRT/23-24**

[On the letterhead of Bidding Company]

1	Contact Person name for the NIB	
2	Designation	
3	Contact No. (phone & mobile)	
4	Fax No.	
5	e-mail ID	
6	Corresponding address with pin code	
7	Remarks	

(Signature of Authorized Signatory)Name:

Designation: Company Seal:

Check List of Technical bid
NIB No.: 07/JREDA/CMC/GCRT/23-24

Annexure-15

S. No.	Particulars	Yes / No	Page No.
1	D. D. towards Tender fee.		
2	Duly pledged EMD		
3	GST certificate.		
4	PAN Card		
5	Firm's registration certificate/ Registration certificate of MSE of Jharkhand.		
6	Certificate issued by Industry Dept. or MNRE for system manufacturing or Registration Certificate for Electrical Contractor (Class-I) issued by Energy Department, Govt. of Jharkhand.		
7	Audited Balance sheet of last three years.		
8	Test certificate of Battery.s		
9	Covering letter (Annexure-1)		
10	Information about the bidding firm (Annexure-2)		
11	Declaration by the bidder (Annexure-3)		
12	Annual Turn over (Annexure-4)		
13	Net Worth certificate (Annexure-5)		
14	Format for power of attorney for signing of bid (Annexure-6)		
15	Proof of supply/execution of SPV systems/ materials in any SNA/Govt. organization/PSU in the last seven years. Attach copy of orders & its satisfactory completion certificate (Annexure-7)		
16	Technical details & make of the Equipments to be supplied (Annexure-8)		
17	Contact Person for the NIB (Annexure-14)		

*** Please write page number as in the box.**

Please ensure:

- i) That all information is provided strictly in the order mentioned in the check list mentioned above.
- ii) Bidders are advised to strictly confirm compliance to bid conditions and not to stipulate any deviation/conditions in their offer. Subsequent to bid submission, JREDA may or may not seek confirmations/clarifications and any offer(s) not in line with Bid conditions shall be liable for rejection.
- iii) Any clarification/confirmation bidder may require shall be obtained from JREDA before submission of the bid. Bidder shall submit complete bidding document including subsequent amendment, modification and revision, duly signed and stamped as a token of having read, understood and accepted all the terms and condition mentioned therein.

(Signature of Authorized Signatory)Name:
Designation: Company Seal:

Bidder's Declaration
(Mandatory Format)
NIB No: 07/JREDA/CMC/GCRT/23-24
[On Bidders Letterhead]

To
The Director,
Jharkhand Renewable Energy Development Agency (JREDA)
3rd Floor, SLDC Building, Kusai Colony,
Doranda Ranchi-834 002, Jharkhand

Sub: Bidder's declaration for Response to Bid for "**Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required:**

dated [insert date]

Dear Sir,

We hereby declare that:

- a. We have gone through the Bid document and verified all terms and conditions.
- b. We have visited to the project location and understood the exact system requirement of JREDA for the system Installed.
- c. We are submitting Geo-Tagged Photographs as proof of site visit/site survey.
- d. We have no questions or concerns if disqualify on the ground of not visiting the project site along with JREDA official/ Representative.
- e. I / we have never ever been blacklisted and / or there were no debaring actions against us for any default in works of Jharkhand Renewable Energy Development Agency (JREDA) OR any other Organization.
- f. I/we meet all qualifying criteria, subject to be disqualified if I/we:
 - i. made misleading or false representations in the forms, statements, affidavits and attachments submitted in proof of the qualification requirements; and/or
 - ii. Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures
 - iii. Participated in the previous bidding for the same work and had quoted unreasonably high or low bid prices and could not furnish rational justification for it to JREDA.

In the event of any such information pertaining to the aforesaid matter found at any given point of time either during the course of the contract or at the bidding stage, my bid/contract shall be liable for truncation / cancellation / termination without any notice at the sole discretion of the JREDA.

Failure to comply any points due to any technical or non-technical questions arises due to any presentation in Bid document, Jharkhand Renewable Energy Development Agency (JREDA) will have final say and we hereby agree to that condition.

Dated the _____ day of _____, 20_____

Thanking you,

Yours faithfully,
Name:
Designation:
Place:

Annexure-16(a)

JOINT SITE VISIT/SURVEY REPORT

(Mandatory Format)

Sub: Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required:

Name of Agency:

1. Site Visit/Survey Location:
2. Solar Power Plant Capacity:
3. Date of Visit:

Signature of the Authorized Person of Agency:

Name:

Designation:

Signature of the JREDA Official/
Representative:

Name:

Designation:

Seal:

Date:

Place:

JOINT COMMISSIONING REPORT OF SOLAR POWER PLANTS

Sub: Selection of Agencies for Five Years Comprehensive Maintenance Contract & Operation (CMCO) of 2x200 KWp Grid Connected Rooftop Solar Power Plants installed at Rajendra Institute of Medical Sciences (RIMS), Ranchi including replacement of 400 KVA (200 KVA X 02 No.) Inverter & Two set battery bank (2700Ah, 360V Each) and other components as required installed at following RIMS in Ranchi, Jharkhand:

1. JREDA Work Order No.:

2. Name of Contractor:

3. Solar Power Plant Location:

4. Solar Power Plant Capacity:

5. Date of Commissioning:

Date:

Place:

Seal and Signature of the Contractor:
Name:
Designation

JOINT COMMISSIONING REPORT OF SPV POWER PLANTS

- 1. Name of the Site:
- 2. Capacity of SPV Power Plants installed ----- kWp.
- 3. Work Order No.:
- 4. Actual Date of Commissioning:
- 5. Stipulated Date of commissioning as per W.O.:
- 6. Extension granted till: Not Applicable vide JREDA letter no. Not Applicable
- 7. Name & address of the contractor:
- 8. This is hereby certified that the contractor ----- has successfully installed & commissioned the ----- kWp SPV Power Plant at -----on --.--.2021 with major components as mentioned in **Annexure I** appended hereto, as per the terms and conditions of the work order mentioned at serial No. (3) Above.
- 9. The work order has been fully executed as per the work order and the SPV Power Plant at ----- of ----- kWp handed over to the Consignee cum User Agency in good working condition. We shall provide complete warranty against all manufacturing defects and defective/erroneous installation for a period of five years from this date of Commissioning. The above-mentioned SPV Power Plant is hereby handed over by the contractor to the Consignee cum User Agency in fully satisfactory working condition.

Date:
Place:

Seal and Signature of the Contractor:
Name:
Designation:

SPV Power Plant Installed at ----- of ----- kWp have been verified by JREDA Engineer-In -Charge and handed over to consignee in working condition.

Seal and Signature of Consignee cum User Agency
In -Charge
Name:
Designation:

Seal and Signature of JREDA Engineer-
Name:
Designation:

Annexure-I

Forming integral part of the Joint Commissioning report dated ----- showing details of major components installed at-----of SPV of ----- kWp Capacity.					
S. N.	Name of the items Installed/works. commissioned at site	Size	Unit	Quantity	Remark
1	Control Room Building: No cable is exposed. Proper casing capping (Conduit pipe) is provided with distribution line. Control Room has been provided by Consignee.	-----	Sq. Mtrs.	N/A	Provided
2	Matting as required for Control Room	Provided			
3	SPV Modules of -----Wp, ----- Cells each of ----- make (Serial No's as mentioned in enclosed Annexure II.)		Wp	Nos.	As per specification
4	SPV Module Mounting Structure for the --- ----- Nos. of modules for----- kWp capacity unit on structure including design & construction of PCC/RCC foundation base for holding the above structures the work includes necessary excavation, concreting, back filling, shoring and shattering etc.)	----- Modules in ----- -- structure		----- Nos.	As per specification
5	PCU/Inverter: Capacity -----KVA ----- V, Digital sine wave, Make of-----, suitable for grid tie and hybrid mode of operation along with all protection, controlling, arrangement and required accessories suitable for the power plant commissioned.		KVA	----- No's	As per specification
6	Lightening Protection System		Numbers	- ----- No	
7	Over Voltage protection System				
8	DCDB		Numbers	- ---- No	
9	ACDB		Numbers	- --- No	
10	Array Junction Box:		Numbers	- --- No's	
11	Earthing Protection: The earthing pit is as per IS:3043	OPITS	Numbers	- ---- Sets	
12	Cable/wire 4 Sq. mm PVC Copper	-----	Meters		
13	Cable/Wire 25 Sq. mm PVC Copper	-----	Meters		

Date:

Place:

Seal and Signature of the Contractor:

Name:

Designation:

Verification Report of JREDA Engineer-In –Charge:

Above mentioned **Annexure-I** w.r.t. installation of Solar Power Plant of ---kWp at----- have been verified and found as per the specification.

Seal and Signature of JREDA Engineer-In -Charge

Name:

Designation:

Annexure-II

SPV Modules Details

SPV Modules Installed at _____ of - _____ kWp Capacity.

Total Capacity -----kWp
Each Modules Capacity----- Wp
Total No of Modules-----Nos.

S. No.	Module Sl. No.	S. No.	Module Sl. No.	S. No.	Module Sl. No.
1		9		17	
2		10		18	
3		11		19	
4		12		20	
5		13		-	
6		14		-	
7		15		-	
8		16		-	

Date:

Seal and Signature of the Contractor:

Name:

Designation

Place:

Verification Report of JREDA Engineer-In -Charge:

Above mentioned Module Sl. No. w.r.t. installation of Solar Power Plant of ---kWp at----- have been verified and found as per the specification.

Seal and Signature of JREDA Engineer-In -Charge

Name:

Designation:

Power Conditioning Unit (PCU)/Inverter

Make:

Sl. No:

Photographs Enclosed:

Date:

Seal and Signature of the Contractor:

Place:

Name:

Designation

Verification Report of JREDA Engineer-In -Charge:

Above mentioned photograph w.r.t installation of Solar Power Plant of ---kWp at----- have been verified and found as per the specification.

Seal and Signature of JREDA Engineer-In -Charge

Name:

Designation:

Annexure-17: Operation and Maintenance Guidelines of Grid Connected PV Plants
NIB No: 07/JREDA/CMC/GCRT/23-24

For the optimal operation of a PV plant, maintenance must be carried out on a regular basis. 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:

1. SOLAR PANELS

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

The panels are cleaned at least once every fifteen days.

- Any bird droppings or spots should be cleaned immediately.
- Use water and a soft sponge or cloth for cleaning.
- Do not use detergent or any abrasive material for panel cleaning.
- Iso-propyl alcohol may be used to remove oil or grease stains.
- Do not spray water on the panel if the panel glass is cracked or the back side is perforated.
- Wipe water from module as soon as possible.
- Use proper safety belts while cleaning modules at inclined roofs etc.
- The modules should not be cleaned when they are excessively hot. Early morning is particularly good time for module cleaning.
- Check if there are any shade 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.
- Ensure that the module terminal connections are not exposed while cleaning; this poses a risk of electric shock.
- Never use panels for any unintended use, e. g. drying clothes, chips etc.
- Ensure that monkeys or other animals do not damage the panels.

2. CABLES AND CONNECTION BOXES

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

3. INVERTER

- The inverter should be installed in a clean, dry, and ventilated area which is separated from, and not directly above, the battery bank.
- Remove any excess dust in heat sinks and ventilations. This should only be done with a dry cloth or brush.
- Check that vermin have not infested the inverter. Typical signs of this include spider webs on ventilation grills or wasps' nests in heat sinks.
- Check functionality, e.g. automatic disconnection upon loss of grid power supply, at least once a month.
- Verify the state of DC/AC surge arrestors, cable connections, and circuit breakers.

4. SHUTTING DOWN THE SYSTEM

- Disconnect system from all power sources in accordance with instructions for all other components used in the system.
- Completely cover system modules with an opaque material to prevent electricity from being generated while disconnecting conductors.
- To the extent possible, system shutdown will not be done during day time or peak generation.

INSPECTION AND MAINTENANCE SCHEDULE

Component	Activity	Description	Interval	By
PV Module	Cleaning	Clean any bird droppings/ dark spots on module	Immediately	User/Technician
	Cleaning	Clean PV modules with plain water or mild dishwashing detergent. Do not use brushes, any types of solvents, abrasives, or harsh detergents.	Fortnightly or as per the site conditions	User/Technician
	Inspection (for plants > 100 kWp)	Use infrared camera to inspect for hot spots; bypass diode failure	Annual	Technician
PV Array	Inspection	Check the PV modules and rack for any damage. Note down location and serial number of damaged modules.	Annual	User/Technician
	Inspection	Determine if any new objects, such as vegetation growth, are causing shading of the array and move them if possible.	Annual	User/Technician

	Vermin Removal	Remove bird nests or vermin from array and rack area.	Annual	User/Technician
Junction Boxes	Inspection	Inspect electrical boxes for corrosion or intrusion of water or insects. Seal boxes if required. Check position of switches and breakers. Check operation of all protection devices.	Annual	Electrician
Wiring	Inspection	Inspect cabling for signs of cracks, defects; loose connections, overheating, arcing, short or open circuits, and ground faults.	Annual	Electrician
Inverter	Inspection	Observe instantaneous operational indicators on the faceplate of the inverter to ensure that the amount of power being generated is typical of the conditions. Inspect Inverter housing or shelter for physical maintenance, if required.	Monthly	Electrician
Inverter	Service	Clean or replace any air filters.	As needed	Electrician
Instruments	Validation	Spot-check monitoring instruments (Pyranometer etc.) with standard instruments to ensure that they are operational and within specifications.	Annual	PV Specialist
Transformer	Inspection	Inspect transformer oil level, temperature gauges, breather, silica gel, meter, connections etc.	Annual	Electrician

Quality Certification, Standards and Testing for Grid-connected Rooftop Solar PV Systems/Power Plants:

Quality certification and standards for grid-connected rooftop solar PV systems are essential for the successful mass-scale implementation of this technology. It is also imperative to put in place an efficient and

rigorous monitoring mechanism, adherence to these standards. Hence, all components of grid-connected rooftop solar PV system/ plant must conform to the relevant standards and certifications given below:

Solar PV Modules/Panels:	
IEC 61215/ IS 14286	Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV) Modules
IEC 61701	Salt Mist Corrosion Testing of Photovoltaic (PV) Modules
IEC 61853- Part 1/ IS 16170: Part 1	Photovoltaic (PV) module performance testing and energy rating -: Irradiance and temperature performance measurements, and power rating
IEC 62716	Photovoltaic (PV) Modules – Ammonia (NH ₃) Corrosion Testing (As per the site condition like dairies, toilets)
IEC 61730-1,2	Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for Construction, Part 2: Requirements for Testing
IEC 62804	Photovoltaic (PV) modules - Test methods for the detection of potential-induced degradation. IEC TS 62804-1: Part 1: Crystalline silicon (mandatory for applications where the system voltage is > 600 VDC and advisory for installations where the system voltage is < 600 VDC)
IEC 62759-1	Photovoltaic (PV) modules – Transportation testing, Part 1: Transportation and shipping of module package units
Solar PV Inverters	
IEC 62109-1, IEC 62109-2	Safety of power converters for use in photovoltaic power systems – Part 1: General requirements, and Safety of power converters for use in photovoltaic power systems Part 2: Particular requirements for inverters. Safety compliance (Protection degree IP 65 for outdoor mounting, IP 54 for indoor mounting)

IEC/IS 61683 (as applicable)	Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions)
BS EN 50530 (as applicable)	Overall efficiency of grid-connected photovoltaic inverters: This European Standard provides a procedure for the measurement of the accuracy of the maximum power point tracking (MPPT) of inverters, which are used in grid-connected photovoltaic systems. In that case the inverter energizes a low voltage grid of stable AC voltage and constant frequency. Both the static and dynamic MPPT efficiency is considered.
IEC 62116/ UL 1741/ IEEE 1547 (as applicable)	Utility-interconnected Photovoltaic Inverters - Test Procedure of Islanding Prevention Measures
IEC 60255-27	Measuring relays and protection equipment – Part 27: Product safety requirements
IEC 60068-2 (1, 2, 14, 27, 30 & 64)	Environmental Testing of PV System – Power Conditioners and Inverters a) IEC 60068-2-1: Environmental testing - Part 2-1: Tests - Test A: Cold b) IEC 60068-2-2: Environmental testing - Part 2-2: Tests - Test B: Dry heat c) IEC 60068-2-14: Environmental testing - Part 2-14: Tests - Test N: Change of temperature d) IEC 60068-2-27: Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock e) IEC 60068-2-30: Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle) f) IEC 60068-2-64: Environmental testing - Part 2-64: Tests - Test Fh: Vibration, broadband random and guidance
IEC 61000 – 2,3,5 (as applicable)	Electromagnetic Interference (EMI) and Electromagnetic Compatibility (EMC) testing of PV Inverters
Fuses	
IS/IEC 60947 (Part 1, 2 & 3), EN 50521	General safety requirements for connectors, switches, circuit breakers (AC/DC): a) Low-voltage Switchgear and Control-gear, Part 1: General rules b) Low-Voltage Switchgear and Control-gear, Part 2: Circuit Breakers c) Low-voltage switchgear and Control-gear, Part 3:

	Switches, disconnectors, switch-disconnectors and fuse-combination units d) EN 50521: Connectors for photovoltaic systems – Safety requirements and tests
IEC 60269-6	Low-voltage fuses - Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems
Surge Arrestors	
IEC 62305-4	Lightening Protection Standard
IEC 60364-5-53/ IS 15086-5 (SPD)	Electrical installations of buildings - Part 5-53: Selection and erection of electrical equipment - Isolation, switching and control
IEC 61643-11:2011	Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems - Requirements and test methods
Cables	
IEC 60227/IS 694, IEC 60502/IS 1554 (Part 1 & 2)/ IEC69947	General test and measuring method for PVC (Polyvinyl chloride) insulated cables (for working voltages up to and including 1100 V, and UV resistant for outdoor installation)
BS EN 50618	Electric cables for photovoltaic systems (BT(DE/NOT)258), mainly for DC Cables
Earthing/Lightning	
IEC 62561 Series (Chemical earthing)	IEC 62561-1 Lightning protection system components (LPSC) - Part 1: Requirements for connection components IEC 62561-2 Lightning protection system components (LPSC) - Part 2: Requirements for conductors and earth electrodes IEC 62561-7 Lightning protection system components (LPSC) - Part 7: Requirements for earthing enhancing compounds
Junction Boxes	
IEC 60529	Junction boxes and solar panel terminal boxes shall be of the thermo-plastic type with IP 65 protection for outdoor use, and IP 54 protection for indoor use
Energy Meters	
IS 16444 or as specified by the DISCOMs	A.C. Static direct connected watt-hour Smart Meter Class 1 and 2 – Specification (with Import & Export/Net energy measurements)

IS 2062/IS 4759	Material for the structure mounting
Solar PV Roof Mounting Structure	
IS 2062/IS 4759	Material for the structure mounting

Note: Equivalent standards may be used for different system components of the plants after dueconsultation with Engineer-in charge of work.