

**Bid Specifications for
Design, Manufacture, Testing, Supply, Installation &
Commissioning of Grid connected Rooftop SPV Power
Plants including five years CMC on Turnkey basis in
Jharkhand in the Financial Year 2013-14
Implemented by JREDA,
Energy Department, Govt. of Jharkhand**



Jharkhand Renewable Energy Development Agency (JREDA)

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Notice Inviting Bid

NIB No.28 /JREDA/SPV/Rooftop/2013-14

Sub: Design, Manufacture, Testing, Supply, Installation & Commissioning of indigenous Grid connected Rooftop SPV Power Plants including five years Comprehensive Maintenance Contract (CMC) on Turnkey basis in the state of Jharkhand.

JREDA invites bid for “Design, Manufacture, Testing, Supply, Installation & Commissioning of indigenous Grid connected Rooftop SPV Power Plants including five years Comprehensive Maintenance Contract (CMC) on Turnkey basis at various sites in the state of Jharkhand” for short listing of experienced & eligible bidders to whom work shall be allocated for successful execution of the project in a defined time frame. Total quantity of work is 1530KWp capacity.

Part –I Technical Bid:

The bidder should fulfill the following minimum technical and eligibility conditions. The bidder should submit the check list for this purpose as per the Performa given at **Annexure-2**.

1. The bidder should be MNRE approved Channel Partner/ MNRE approved Manufacturer/ MNRE approved PV System Integrator/A registered manufacturing company/Firm/Corporation in India (Including MSME of Jharkhand) of at least one of the major sub systems namely SPV Cells/ Modules or Battery or PV System Electronics (Conforming to relevant National/ International Standards. The bidder shall furnish either relevant MNRE certificate or concerned Industry Department certificate clearly indicating that they are manufacturers of SPV Systems including SPV Cells/ Modules or Battery or PV System Electronics as applicable. **Authorized dealers and sub-contractors are not eligible to participate.**
2. The bidder should be a functional organization. To substantiate this claim, the bidder should submit the copy of balance sheet for last 3 years or from the date of establishment to 31.03.2013 indicating clearly the sale and turnover of SPV systems. These balance sheets should be duly certified by the Statutory Auditor with his stamp.
3. Registered Micro, Small & Medium Enterprise (MSME) of Jharkhand should submit the attested copy of Registration given by Industry Department.
4. **Experience Requirement:**
For General Bidder: Bidder should have cumulative experience of executing contracts of at least **25%** of bid capacity of SPV power plants to any SNA(state Agencies) / Govt. Organization / PSU in the last five years ending up to the date of advertisement of this tender.
For MSME of Jharkhand: Bidder should have cumulative experience of executing contracts of at least **10%** of bid capacity of SPV power plants to any SNA(state Agencies) / Govt. Organization / PSU in the last five years ending up to date of advertisement of this tender. The copy of order and certificate indicating its successful execution should be enclosed with the check list as at **Annexure-2**.
5. The offered PV Modules should be Crystalline Silicon PV Modules as per IEC 61215 Standards or IS14286 and having test certificates prescribed by MNRE. In addition, the modules must conform to IEC 61730 part I – requirement for construction and part – II requirement for testing, for safety

qualification or equivalent IS. The offered modules shall be of standard make, specifications and manufacturing brand like Vikram solar/Waree/ Tata power or reputed brand approved by MNRE having test certificates issued from **MNRE specified** test laboratories. The valid test reports should be enclosed along with the check list as at **Annexure-2**. The bidder has to supply the modules of same make, specifications and standard brand for which test reports submitted in the tender otherwise bid document shall be liable for rejection.

6. Electronics should conform to relevant Standard for efficiency measurement and should also conform to relevant BIS standard for environmental testing. The inverter should be from Indian Manufacturer. The valid test certificate should be enclosed along with the check list at **Annexure-2**.
7. Batteries should conform to relevant IEC / IS specifications and should fulfill 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 to be submitted along with the check list as at **Annexure-2**. 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 of standard make, specifications and manufacturing brand like Amara Raja/Energy leader/HBL/NED/Exide or reputed brand approved by MNRE having test certificates issued from **MNRE specified** test laboratories. The valid test reports should be enclosed along with the check list as at **Annexure-2**. The bidder has to supply the batteries of same make, specifications and manufacturing brand for which test reports submitted in the tender otherwise bid document shall be liable for rejection.
8. The Bidder should have valid CST/State VAT/ TIN registration certificate. A copy of which should be enclosed in the check list as at **Annexure-2**.
9. 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. The Performa for undertaking is given at **Annexure-3**.
10. **Turnover Requirement:**
For General Bidder: Bidder should have the minimum average Annual Turnover of **25%** of estimated cost of the offered project derived from the last three financial years ending on 31.03.2013 on the basis of audited Annual accounts.
For MSME of Jharkhand: Bidder should have the minimum average Annual Turnover of **10%** of estimated cost of the offered project derived from the last three financial years ending on 31.03.2013 on the basis of audited Annual accounts.
The certificate should be as per the Performa given at **Annexure-12**.
11. **Net worth Requirement:**
For General Bidder: Bidder should have net worth of minimum 10% of the estimated cost of the project/sites as on 31.03.2013 on the basis of audited Annual accounts.
For MSME of Jharkhand: Bidder should have positive Net worth as on 31.03.2013 on the basis of audited Annual accounts.
Net worth certificate should be as per the Performa given at **Annexure-13**.

12. **Empanelment procedure after opening of financial bid:** The financial bid should be submitted in a separate envelope as per the Performa given at Annexure-4. The lowest rate i.e. L1 received would be the appropriate rate. The bidders shall be ranked as L1, L2, L3 and so on based on financial bids.
- JREDA will allot the quantum of work to L1 bidder on the basis of his technical & financial competence to complete the execution of work on time. If required, the remaining work for item no. G&H only shall be offered to L2, L3 and so on at L1 rate.
- For MSME of Jharkhand, relevant provisions of Jharkhand Industrial Policy 2012 shall be applicable for work allocation under the tender.
13. For claiming the benefits provided to MSMEs of Jharkhand, they must possess the following :
- Valid registration certificate from the Industry Department, Govt. of Jharkhand
 - Manufacturing factory should have valid electrical connection from the state Discom. e.g. JSEB/JUSCO/Tata steel/ BSL Bokaro/DVC as the case may be.
 - In case the Manufacturing factory is in the territory of Jharkhand having its own power generation facility, it must be certified by Electrical Inspector, Energy Department, Govt. of Jharkhand with up to date deposit of inspection fee by Electrical Inspector, Govt. of Jharkhand .
13. The Bidder should either purchase the bid document from JREDA office by submitting a demand draft of Rs. 10,000/- (Rupees Ten thousand only) in favour of “Director JREDA” on any Indian Nationalized Bank/Scheduled Bank, payable at “Ranchi” or download the bid document from JREDA website (www.jreda.com) and submit the cost of the bid document of requisite value in the form of Demand Draft, as applicable along with Part – I (Technical Bid).
14. Bidders should submit in Part – I (Technical Bid) the earnest money in the form of only original Bank Guarantee/ Demand Draft of requisite value as mentioned in “Particulars of Tender”. The Bank Guarantee/DD 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. In no case the photo copy of Bank Guarantee/ DD shall be acceptable.

Particulars of Bid

NIB No: 28 /JREDA/SPV/Rooftop/2013-14

Eligible and prospective Bidders may quote their offers as per details mentioned below:

1.	Name of work	Design, Manufacture, Testing, Supply, Installation & Commissioning of indigenous Grid connected Rooftop SPV Power Plants including five years Comprehensive Maintenance Contract (CMC) on Turnkey basis in the state of Jharkhand.																														
2	Tentative Quantity	<p>Total Grid connected Rooftop SPV Power Plants capacity: 1530 kWp.</p> <p>The above Rooftop SPV plants have been categorized into eight groups on basis of site location and capacity the details of which as given below:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Group</th> <th style="text-align: center;">Site/District</th> <th style="text-align: center;">Total Capacity</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">A</td> <td>P MCH Dhanbad,DC Office Dhanbad,Referral Hospital Jaina More</td> <td style="text-align: center;">300 kWp</td> </tr> <tr> <td style="text-align: center;">B</td> <td>Simdega DC Office,Jail, SimdegaJail ,Khunti</td> <td style="text-align: center;">260 kWp</td> </tr> <tr> <td style="text-align: center;">C</td> <td>Hotwar,Chatra,Latehar Jail</td> <td style="text-align: center;">255 kWp</td> </tr> <tr> <td style="text-align: center;">D</td> <td>Dumka Hospital/Godda Jail/Tenughat Jail</td> <td style="text-align: center;">240 kWp</td> </tr> <tr> <td style="text-align: center;">E.</td> <td>Sahebganj Hospital,Pakur Hospital</td> <td style="text-align: center;">230kWp</td> </tr> <tr> <td style="text-align: center;">F</td> <td>SDH Bermo,CHC Bermo,Garhwa Jail</td> <td style="text-align: center;">205 kWp</td> </tr> <tr> <td style="text-align: center;">G</td> <td>Temple,Public place,Govt.premises</td> <td style="text-align: center;">30 kWp</td> </tr> <tr> <td style="text-align: center;">H</td> <td>Temple,Public places,Govt.premises</td> <td style="text-align: center;">15 kWp</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total</td> <td style="text-align: center;">1530 KWp</td> </tr> </tbody> </table> <p>The total estimated project cost as per the DPR is about 27 Crores. For estimated cost & capacity of individual project/site, kindly refer to Technical specification at page no.15 of this tender.</p> <p>A bidder can quote only one bid from A to F groups. For G and H, a bidder can participate in either or both groups. JREDA may consider awarding additional supply/installation works at eight new installations/sites as need may arise in future. The rate shall be valid up to 31st March'2015.</p>	Group	Site/District	Total Capacity	A	P MCH Dhanbad,DC Office Dhanbad,Referral Hospital Jaina More	300 kWp	B	Simdega DC Office,Jail, SimdegaJail ,Khunti	260 kWp	C	Hotwar,Chatra,Latehar Jail	255 kWp	D	Dumka Hospital/Godda Jail/Tenughat Jail	240 kWp	E.	Sahebganj Hospital,Pakur Hospital	230kWp	F	SDH Bermo,CHC Bermo,Garhwa Jail	205 kWp	G	Temple,Public place,Govt.premises	30 kWp	H	Temple,Public places,Govt.premises	15 kWp	Total		1530 KWp
Group	Site/District	Total Capacity																														
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H	Temple,Public places,Govt.premises	15 kWp																														
Total		1530 KWp																														
3	Cost of Bid document (Non-refundable)	❖ Rs.10, 000/- (Rupees Ten Thousands only) for General Bidder. ❖ Rs. Nil for MSME of Jharkhand.																														
4	Earnest Money Deposit	For General Bidder: 2% of estimated cost of offered Project. For MSME of Jharkhand: Nil.																														
5	Time of completion	Six months .																														
6	Validity of offer for acceptance	Till 31 st March '2015.																														
7	Date of Issue of bid documents	From 14.03.2014.																														
8	Last date & time of submission of bids document	21.04.2014 up to 3.00 PM.																														
9	Date & time of opening of Technical bid Part-I	21.04.2014 at 4.00 PM.																														
10	Date & time of opening of Financial bid Part-II	Shall be intimated in due course on website & through email/letter.																														
11	Place of issue and submission of bid documents and address for communication	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																														

Instruction to Bidder

NIB No: 28 /JREDA/SPV/Rooftop/2013-14

Jharkhand Renewable Energy Development Agency (JREDA), Ranchi invites offers from eligible Indian bidders for the tender for the mentioned work with your best bidding price offer as per our specifications and terms & conditions mentioned in the bid document. Salient features of the bid document are given below:

1. Bid Document

1.1 This bid document comprises of total **37 Pages**. In addition, any other documents/instructions/amendments/revisions issued by JREDA to the bidder till the due date of opening of the bids shall also be deemed to be integral part of the bid document. Failure to furnish all the information as per the bid document in every respect will be at the bidder's risk.

2. Cost of Bid Document

2.1 Bid document can be purchased from JREDA office by submitting a Demand Draft of Rs. 10,000/- only drawn in favor of "Director, JREDA" on any Indian Nationalized Bank/Scheduled Bank, payable at "Ranchi" of requisite value, as applicable, during the time and period mentioned in "Particulars of Bid".

2.2 Bidders may also download the bid document from JREDA website (www.jreda.com) and submit the cost of the bid document of requisite value in the form of Demand Draft, as applicable along with **Part – I (Technical Bid)**.

2.3 Bid applications without the cost of bid document will be rejected.

3. Earnest Money

3.1 Bidders shall submit in **Part – I (Technical Bid)** the earnest money in the form of Bank Guarantee/DD of requisite value as mentioned in "Particulars of Tender". The Bank Guarantee/DD shall be made in favor of "Director, JREDA" payable at Ranchi from any Indian Nationalized bank/Scheduled bank. Original copy of BG/DD shall only be acceptable.

3.2 The Bank Guarantee shall remain valid for 12 months.

3.3 Bidders seeking concession/exemption from submission of cost of bid document and/or earnest money, shall have to submit an attested photocopy of relevant MSME of Jharkhand certificate as applicable, in Part – I of the bid application. ***Non submission of relevant certificate may lead to rejection of bid.***

3.4 The earnest money shall be returned to all unsuccessful bidders after thirty days from the date of placement of LOI/LOA to the successful bidder(s).

3.5 The earnest money shall be forfeited if –

- a. Any bidder withdraws his bid or resiles from his offer during the validity period.
- b. The successful bidder fails to furnish his Acceptance of the order within fifteen days of placement of LOI/LOA by JREDA.
- c. The bidder fails to successfully complete the work within the stipulated time frame. Delay in completion due to extreme and unavoidable situations shall have to get approved by Director, JREDA. This approval shall also have a cut-off date by which the entire work shall have to be completed.

- d. If at any time, any of the document/information submitted by the bidder is found to be incorrect, false or untruthful.

4. Security Deposit:

- 4.1** Successful General bidders shall submit a security deposit @10% of the allotted work order value in the form of Bank Guarantee/DD on or before 15 days from date of issue of work order.
- 4.2** Successful MSME bidders are exempted from submission of security deposit.
- 4.3** The 50% Security Deposit shall be refunded / released to the bidder after expiry of 60 days from the actual date of successful Supply, Installation & Commissioning. The balance 50% Security Deposit will have to be maintained by the bidder with JREDA as Performance Guarantee till the completion of warrantee period of complete system.

5. Performance Guarantee:

- 5.1** 50% Security deposit of successful General bidders shall be treated as performance guarantee after Supply, Installation & Commissioning as mentioned at clause 4.3.
- 5.2** Successful MSME bidders shall submit a Performance Guarantee @2.5% of the allotted work order value in the form of bank guarantee before release of any payment.
- 5.3** The Performance Guarantee will have to be maintained by the bidder with JREDA till the completion of Guarantee period/ CMC period.
- 5.4** 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.
- 5.5** Non submission of Security Deposit/Performance Guarantee within the time frame, may lead to forfeiture of EMD and cancellation of LOI/LOA.
- 5.6** If Bidder/MSME unit fails to carry out the work allotted to him as per the provisions of the tender documents then such Bidder/MSME unit may be black listed for future awards of work.

6. Submission of Bids:

- 6.1** Bidders are advised to submit their bids strictly based on the specifications, terms and conditions contained in the bid document and subsequent revisions/amendments, if any. The bid should be submitted along with covering letter as given at **Annexure-1**.
- 6.2** The bid shall be prepared and submitted by typing or printing in English on white paper in consecutively numbered pages duly signed by the authorized signatory with company seal affixed on each page. Any part of the bid, which is not specifically signed by the authorized signatory and not affixed with company seal, may not be considered for the purpose of evaluation. The bidder shall also enclose the information about bidding firm as per **Annexure-6**.
- 6.3** Original copy of bid document, amendments/revisions to bid document preferably with one soft copy, including minutes of meeting(s), issued by JREDA, if any, shall be signed and submitted along with the bid.
- 6.4** All the Performa must be on the bidder’s official letterhead (if specified). Any change in wording of the Performa will not be allowed. The bidder shall submit a declaration as given at **Annexure-7**.
- 6.5** The offer shall contain no erasures or overwriting except as necessary to correct errors made by bidder. The person signing the offer shall initial such corrections.
- 6.6** Complete bid document including all enclosures should preferably be submitted in hard bond or spiral binding and all pages should be numbered (except leaflet/catalogue) and must be signed by the

company's authorized signatory with seal of the company. In case of non-compliance, the bid shall be rejected with the consent of JREDA purchase committee.

6.7 The bidders should submit the bid in two envelopes, The **Part-I (Technical bid)** and the **Part – II (Price Bid)** should be sealed in separate envelopes and both envelopes should be sealed in a third envelope. The Part – II (Price Bid) of only such bidders would be opened who qualify in the **Part – I (Technical Bid)**. The **Part-I (Technical Bid)** should be sealed in an envelope super scribed with (i) NIT NO.(ii) "**Part-I Technical Bid**", (iii) Name and address of the bidding firm, and (iv) should be addressed to Director, JREDA.

6.8 **Part –I (Technical Bid)** should not contain price of any item. Such cases, even if found anywhere, shall not be given any cognizance.

6.9 The **Part-II (Price Bid)** should be sealed in an envelope super scribed with NIT No., "Part – II Price Bid", Name and address of the bidding firm, and should be addressed to Director, JREDA. This envelope should contain the following :

- a. It should contain only Performa as prescribed at **Annexure-5** duly filled, signed and stamped by authorized signatory of the bidder.
- b. In case of any contradictions between the prices mentioned in figures and words, the prices mentioned in words shall be considered final. Also, in case of any arithmetical error in regard to the total amount and individual rates, the individual rates shall be taken as final and the total amount shall be adjusted accordingly.
- c. The price bid should not contain any technical matter or other matter except price. The date of opening of the price bid will be notified after opening of Technical bid.

6.10 **Part-I and Part –II** of the bid document should be sealed in a third envelope. The third envelope should be sealed and super scribed (i) NIB No. **28 /JREDA/SPV/Rooftop/2013-14** , (ii) "Offer for Grid Connected Rooftop SPV Power Plant" (iii) Name and address of the bidding firm, and (iv) Should be addressed to Director, JREDA, 3rd Floor, SLDC Building, Kusai, Doranda, Ranchi-834002.

7.0 Authority of Person Signing the Documents

A person signing the bid document or any document forming part of the bid document shall be deemed to warrant that he has authority to bid such offer/ document and if on enquiry it appears that the person signing the document had no authority to do so, JREDA may, without prejudice to other civil and criminal remedies, cancel the bid/contract and hold the signatory liable for all costs and damages. For this purpose Power of Attorney in the Performa as prescribed at **Annexure-11** shall be submitted.

8.0 No Claim or Compensation for Submission of Tender

The bidder whose bid is not accepted shall not be entitled to claim any costs, charges or expenses in connection with his submission of bid, even though JREDA may decide to withdraw the Notice Inviting Tender.

9.0 Validity of Offer

Unless otherwise specified, the bidder shall keep his offer valid initially for a period of Six months from the last date of submission of the bid.

10 Other Terms & Conditions

- 10.1 Insertion, post-script, addition and alteration shall not be recognized unless confirmed by bidder's initial.
- 10.2 Incomplete tender or tenders not submitted as per requirement as indicated in the NIT may likely to be rejected.
- 10.3 Bidders shall submit their offer strictly as per terms and conditions of the tender document without any deviation.
- 10.4 Failure to furnish all information and documentary evidence as stipulated in the bid document or submission of an offer that is not substantially responsive to the bid document in all respects shall be summarily rejected.
- 10.5 All bids will be received in duly sealed cover within the due date and time. Bids received after the due date and time is liable for outright rejection.
- 10.6 JREDA reserves the right to reject part or whole of the bid/order without assigning any reason thereof, postpone the date of receipt and opening of the bids or cancel the bid without bearing any liability, whatsoever, consequent upon such decision.
- 10.7 MNRE Benchmark rate will be treated as the base rate. Rate quoted below 10% of MNRE benchmark cost shall be liable for rejection.
- 10.8 No postal transaction shall be entertained for obtaining bid documents.
- 10.9 Issuance of bid documents shall not construe that the bidders would be automatically considered qualified.
- 10.10 The rate shall be valid up to 31st March'2015.
- 10.11 **For any clarification with respect to the specification and other allied technical details mentioned in the tender document, Sri Arvind Kumar, Project Director (M- 9431102540) may be contacted during office hours through written request latest by 25.03.2014. Request made after the date will not be considered.**

General Terms & Conditions

NIB No. 28 /JREDA/SPV/Rooftop/2013-14

1.0 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 for Solar Photovoltaic Power Plant includes Design, Manufacture, Testing, Supply, Installation & Commissioning of indigenous Grid connected Rooftop SPV Power Plants including five years Comprehensive Maintenance Contract (CMC) on Turnkey basis complete set in all respects in the different sites in Jharkhand as per technical details of the specific site.

The prospective bidders are requested to visit work site before submission of bid for assessment of actual work involved.

3.0 Bid documents

Tender documents shall comprise of all the documents mentioned in this tender. 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 inclusive of all taxes, duties and levies including Jharkhand Vat etc. 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

Subject to any deduction which JREDA may be authorized to make under this contract, the contractor shall be entitled to payment as follows:

- (a) **60%** of the Contract Price shall be paid against supply and delivery of goods in full and in good condition as certified by Consignee & JREDA Officials after submission of following documents:
 - i. Original Commercial invoice raised from the state of Jharkhand for the supply made in triplicate .
 - ii. Copy of duly raised delivery challan/ transportation challan/lorry receipt.
 - iii. Duly filled **Annexure-10** should be submitted in three sets .
 - iv. Insurance certificate.
- (b) **30%** of the Contract Price shall be paid against Installation, Testing & Commissioning after submission of following documents:
 - i) Copy of Original Commercial invoice raised at the time of supply in triplicate
 - ii) Copy of duly filled **Annexure-10**.
 - iii) Photographs of all the equipment (materials) installed at destination with signature& seal of Consignee & JREDA Officials.
 - iv) Certificate for minimum seven days of satisfactory performance.
- (c) Rest **10%** of the Contract Price shall be paid **@2%** of the Contract Price on completion of every one year period of the 5 year Operation and CMC period, after submission of following documents:
 - i) Copy of Original Commercial invoice raised at the time of supply in triplicate .
 - ii) Submission of quarterly reports of Operation and CMC undertaken by the manufacturer (In the format at **Annexure-14**).

7.0 Dispatch Instructions

All items/equipments shall be subject to pre-dispatch inspection by authorized representatives of JREDA before their dispatch. The manufacturer will submit test report with regard conformity to technical specifications for the items to be dispatched to JREDA. However, equipments will be dispatched 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.

8.0 Liquidated Damages for Delay in Completion

If the supplier fails in the due execution 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.

9.0 Risk & Cost:

If the contractor fails to complete the awarded work up to 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 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 Systems.

11.0 Assignment/ Sub-letting

The Manufacturer shall not assign or sublet the work 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.

15.0 Income Tax/Sales Tax

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

16.0 Five Years Operation and Comprehensive Maintenance Contract (CMC)

16.1 The **Solar Photovoltaic Solar Power Plants** contract price includes the provision of 5 years mandatory Comprehensive Maintenance Contract (CMC). To ensure long term sustainability of the system, the bidder should 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 should also be provided.

16.2 The Comprehensive Maintenance Contract shall include ensuring servicing, repair & replacement guarantee for parts and components (such as battery, electronics, Inverter, PV modules and other hardware) of **SPV PP** for five years from the date of installation. For PV modules, the replacement guarantee is for Twenty five (25) years. Battery should be warranted for a minimum life of 5 years as per terms of order. The date of CMC maintenance period shall begin on the date of actual commissioning of **SPV PP**. It is mandatory for the contractor to carry out CMC regularly and submit report to JREDA quarterly. CMC documents should be certified by Consignee.

16.3 Preventive/Routine Maintenance

This shall be done by the supplier/contractor at least once in every three 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 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.

16.4 Breakdown/Corrective Maintenance

- a. Whenever a complaint is lodged by the user, the bidder shall attend the same immediately. It is clarified that effective CMC means that, the bidder should ensure 24 hours smooth working of all the **SPV SPP** throughout the CMC period and therefore, if any complaint in this level of service is found by the JREDA officials and if the bidder does not attend the rectification of any such defects within three days of communication of such complaint to the bidders, the bidder will be liable for a penalty of Rs. 200 per day beyond three days of reporting of such complaint.
- b. For carrying out the CMC effectively, the Bidder/Manufacturer shall establish Common Service Centre (CSC) at the district headquarter.

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 canceling this contract in whole or part thereof, at its discretion. The contractor shall not claim for compensation for force majeure conditions.

18.0 Jurisdiction of the Court

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

TECHNICAL SPECIFICATIONS

NIB No: 28 /JREDA/SPV/Rooftop/2013-14

Technical Specifications for Design, Manufacture, Testing, Supply, Installation & Commissioning of indigenous Grid connected Rooftop SPV Power Plants including five years Comprehensive Maintenance Contract (CMC) on Turnkey basis in the state of Jharkhand.

1. General Description & Configuration:

The brief technical details for the various Rooftop SPV power plants are as follow:

S. N.	Site	SPV Capacity (kWp)	Battery Bank 240v	Inverter Rating	LED luminaries replacement (50 watt)	Estimated project cost (in Rs. Lacs)
1	P MCH,Dhanbad	110.00	2v,2000Ah	110 KW, 3ϕ, 415v	03 nos	190.71
2	Sadar Hospital Dumka	110.00	2v,2000Ah	110 KW, 3ϕ, 415v	06 nos	191.01
3	Sadar Hospital Pakur	120.00	2v,2200Ah	120 KW, 3ϕ, 415v	03 nos	209.56
4	Sub Divisional Hospital, Bermo	110.00	2v,2000Ah	110 KW, 3ϕ, 415v	06 nos	191.01
5	Sadar Hospital Sahebganj	110.00	2v,2000Ah	110 KW, 3ϕ, 415v	08 nos	191.21
6	Community Health Centre, Bermo	25.00	2v,400Ah	25 KW,3ϕ, 415v	03 nos	44.94
7	Referal Hospital, Jainamore	80.00	2v,1500Ah	80 KW,3ϕ, 415v	06 nos	141.14
8	Dhori Mata Mandir Bokaro	15.00	2v,300Ah	15 KW, 3ϕ, 415v	06 nos	27.52
9	Maa Chhinnamastika Temple, Rajarappa	30.00	2v,500Ah	30 KW, 3ϕ, 415v	25 nos	55.57
10	Birsa Munda Central Jail, Hotwar, Ranchi	120.00	2v,2200Ah	120 KW, 3ϕ, 415v	-----	206.26
11	Khunti Jail, Khunti,	70.00	2v,1300Ah	70 KW, 3ϕ, 415v	-----	123.99
12	Tenughat Jail, Tenughat	55.00	2v,1100Ah	55 KW, 3ϕ, 415v	----	100.71
13	Simdega Jail Simdega	70.00	2v,1300Ah	70 KW, 3ϕ, 415v	-----	123.99
14	Latehar Jail Latehar	80.00	2v,1500Ah	80 KW, 3ϕ, 415v	-----	140.84
15	Garhwa Jail , Garhwa	65.00	2v,1200Ah	65 KW, 3ϕ, 415v	-----	116.57
16	Chatra jail, Chatra	55.00	2v,1000Ah	55 KW, 3ϕ, 415v	-----	96.90
17	Godda Jail Godda	75.00	2v,1400Ah	75 KW, 3ϕ, 415v	-----	132.41
18	D.C Office , Simdega	120.00	2v,2200Ah	120 KW, 3ϕ, 415v	06 nos	208.86
19	DC Office Dhanbad	110.00	2v,2000Ah	110 KW, 3ϕ, 415v	06 nos	192.00
Total						2685.2

The roof top installation of Solar Power Plant consisting of Poly - Crystalline solar module with seasonal tilt mounting systems with hybrid solar power conditioning unit with battery back-up. The Hybrid PCU in addition to battery charging during sunny hours the loads are fed from SPV Power Plant. The Solar Photovoltaic Power Plant shall cater the electricity demand as per the proposed hours or duration per day. The system shall have the provision of charging battery bank through mains as well. It should be designed such that during sunny hours the loads are fed from SPV Power Plant in addition to battery charging. If the power produced from the Power Plant is not sufficient to feed the loads then the balanced power will be taken from the grid and battery simultaneously according to the available source. The Power Plant shall provide a reliable and independent power supply at a voltage and frequency levels to suit the grid voltage and frequency.

2. Working of the System

Roof Top Based Solar Power Plant is planned to meet the energy requirements of the above mentioned project/sites from solar power to ensure reliability and reduce dependence on grid power.

The system is required to power the lights, fans, computer and other electrical appliances during office hours as well as during night time and holidays. The system is expected to work in the following way:

1. During day time when sufficient sun light is available, the connected load should be powered from the solar electricity generated and any excess solar energy produced should be used to charge the storage batteries.
2. If the storage battery is fully charged, the power generated from the solar plant will be connected to the load, and if the load consumption is lesser than the SPV plant production than the extra power export to the utility grid through the bidirectional meter which records the net energy exported to the grid.

3. During day time when sufficient solar electricity is not available to power the load, the balance energy should be drawn from the storage battery provided. In case sufficient charge is not available, then the balance energy can be drawn from the Utility Grid/ change over to Utility Grid.
4. During night time, when no solar energy is available, the load should be powered from the storage battery provided.
5. Normally, battery storage needs to be charged from the solar array only. But there should be a provision available to charge the battery from utility grid, if the battery voltage is lower than a preset voltage.
6. In general, the priority of usage of input energy sources should be in the following order.
First Priority: Solar
Second priority: Storage Battery
Third Priority: Mains
7. There should be no break in the supply while changing from one mode to another mode of operation.

3.2 Major Components of the system

The following are the major components of the system:

- Solar PV Array
- Array Mounting Structure
- Junction Box
- Power Conditioning Unit
- Storage battery
- Data Logger
- Cables
- Bi-Directional Meter

3.1 Solar PV Module / Array

- i. Solar Photo Voltaic (SPV) modules/ array shall be of high efficiency made of crystalline silicon solar PV cells and shall also satisfy the **MINIMAL TECHNICAL REQUIREMENTS / STANDARDS FOR SPV SYSTEMS**
- ii. The terminal box on the module should have a provision for opening for replacing the cable, if required.
- iii. The rating of each individual module should not be less than 250Wp at Standard Test conditions (Higher ratings can be used) and shall meet following minimum requirement:
Efficiency of module \geq 14%
Fill factor shall be greater than 70%.

General requirements for PV module:

- a. Module shall be made up of mono or poly crystalline silicon cells.
- b. The interconnected cells shall be laminated in vacuum to withstand adverse environmental conditions
- c. The module frame is made of corrosion resistant materials, preferably having aluminium anodized finish
- d. The minimum clearance between the lower edge of the modules and the developed ground level shall be 400 mm.
- e. Surge arresting device to be provide at junction box and module shall be provided with bypass diode.
- f. The SPV module must be IEC 61215 and IEC 61730 Part I and Part II certified from any of the accredited certifying agencies.
- g. Each solar PV module shall be warranted by the manufacturer for at least 90% of its rated power after initial 10 years and 80% of its rated power after 25 years from the completion of the trial run.
- h. Each PV module deployed must use a RF identification tag. The following information must be mentioned in the RFID used on each modules.(This can be inside or outside the laminate, but must be able to withstand harsh environmental conditions).
 - Name of the manufacturer of the PV module
 - Month & year of the manufacture(separate for solar cells and modules)
 - Country of origin (separately for solar cells and module)
 - I-V curve for the module
 - Wattage, I_m , V_m and FF for the module
 - Unique Serial No and Model No of the module
 - Date and year of obtaining IEC PV module qualification certificate
 - Name of the test lab issuing IEC certificate
 - Other relevant information on traceability of solar cells and module as per ISO 9001.

3.2 Module Mounting Structure

- i. The structure shall be provided on terrace of the building.
- ii. The structure shall be designed in accordance with the latitude of the place of installation. The support structure should be designed so that the load on buildings does not cross the limit of 140 Kg / sq. m, for roof mounted type. The array mounting structure shall be designed to allow easy replacement of any module and shall be in line with site requirement. Structure shall be designed for simple mechanical and electrical installation. It shall support SPV modules at a given orientation, absorb and transfer the mechanical loads to the ground properly.
- iii. The array structure shall have tilt arrangement to adjust the plane of the solar array for optimum tilt.
- iv. The mounting structure shall be of anodised aluminium and shall be as per relevant standards and shall withstand wind speeds of 150 KM/hour. The support structure angle should be of dimension 50x50x5mm. The minimum thickness of galvanization shall be at least 80 microns. Fixing fasteners shall be of Stainless steel, all nuts & bolts stainless steel. Legs assembly shall be of MS Hot Dip galvanized pipes after fabrication / Anodised Aluminium.
- v. The minimum clearance of the lowest part of the module / module structure and the terrace shall not be less than 400 mm.

3.3 Junction Boxes

The junction boxes shall be dust, vermin and waterproof and made of FRP/ABS Plastic with IP54 protection as per IEC 529. The terminals shall be connected to copper bus bar arrangement of proper sizes. The junction boxes shall have suitable cable entry points fitted with cable glands of appropriate sizes for both incoming and outgoing cables. Suitable marking shall be provided on the bus bar for easy identification and cable ferrules shall be fitted at the cable termination points for identification.

- The junction boxes shall have suitable arrangement for the following:
- Combine groups of modules into independent charging sub-arrays that shall be wired to the controller.
- Provide a test point for each sub-group for quick fault location.
- To provide group array isolation
- The rating of the junction boxes shall be suitable with adequate safety factor to inter connect the solar PV array.
- Metal oxide varistors shall be provided inside the Array Junction Boxes.

3.4 Power Conditioning Unit

Power Conditioning Unit (PCU) provides an un-interrupted AC power using battery bank. Array output will be fed to PCU which consists of MPPT based Charge Controller, Inverter, Voltage Stabilizer and distribution panel along with necessary Displays, Indicators and Alarms and major protections and should conforming to IEC 61683/ IS 61683 Standard for efficiency measurement should conform to IEC 60068-2(1, 2, 14, 30) or equivalent BIS standard for environmental testing. The power conditioning unit shall convert DC Power by SPV modules and store in battery bank and good quality AC Power output is delivered. Contractor should ensure that the PCU supplied conform the performance as per MNRE requirements/specifications.

The Hybrid PCU in addition to battery charging during sunny hours the loads are fed from SPV Power Plant. The Solar Photovoltaic Power Plant shall cater the electricity demand as per the proposed hours or duration per day. The system shall have the provision of charging battery bank through mains as well. It should be designed such that during sunny hours the loads are fed from SPV Power Plant in addition to battery charging. If the power produced from the Power Plant is not sufficient to feed the loads then the balance power shall be fed by Battery bank. In case Battery bank is not sufficiently charged, then the balance energy can be drawn from the Utility Grid. The Power Plant shall provide a reliable and independent power supply at a voltage and frequency levels to suit the grid voltage and frequency.

The power conditioning unit should be an integrated unit comprising MPPT solar charger and bidirectional inverter. The details of solar charge controller & bidirectional inverter should be as under:

A. SOLAR CHARGE CONTROLLER:

Solar Charge controller should be an MPPT based charge controller which tracks the maximum power point of PV panels all the time.

The MPPT based solar charge controller should guarantee below minimum features:

- 3 stage battery charging (float, boost & equalize stages) for long life of the battery
- Battery current limiting feature to avoid over charge into the batteries
- Battery & PV reverse polarity protection (no use of blocking diodes which reduces overall efficiency of the system)

- Rated MCCB/ MCB on all PV inputs & battery inputs.
- MOV type surge arrestors on all PV inputs for overvoltage protection against lightening induced surges
- Individual KWH meters showing PV Voltage, PV amps, Instantaneous PV Power, daily PV generated & cumulative PV generated.
- All the parameters from KWH meters of PV channels should be available through an industry standard protocol for remote access.

B. BIDIRECTIONAL THREE PHASE INVERTER:

It should be a bidirectional inverter unit such that the same circuit elements are used for performing inverting and battery charging (through mains) operation. It should be an IGBT based, microprocessor controlled inverter & should incorporate PWM technology and all the desired safety features for reliable running of PCU. The below minimum features should be ensured in the inverter unit:

- Operation without any derating from 0 to 50 degrees of ambient temperature
- Overloads of 110% for 60 sec, 125% for 30 sec and 150% for 5 sec.
- Inverter should be able to sustain load imbalance between the phases.
- Automatic reset of all non critical faults such as overloads, AC over voltage/ under voltage etc. once the fault has been cleared
- Facility to export excess PV power to grid incase consumption of loads is less than the generation. This is a futuristic feature and provision should be there to enable & disable this export feature.

The same bidirectional inverter should act as a battery charger (using 3 phase grid supply) incase solar PV power is not available and battery is discharged below a predefined level. The mains based battery charger should incorporate below minimum features:

- Facility to to bypass grid to loads and charge batteries at the same time
- Should be IGBT based for rugged operation.
- Should use AC supply of all the three phases and not single phase.
- Should have a peak efficiency of at least 85% for AC to DC conversion.
- 3 stage battery charging for long life of the battery.
- Facility to enable/ disable charging of battery through mains by controlling the import power from mains.

TECHNICAL SPECIFICATIONS

PARAMETERS	SPECIFICATIONS
Output Voltage	415Volts ± 1% three phase, 4 wire output. Nominal voltage could be adjusted ± 5% via system set points.
Output Frequency	50Hz ± 0.5% during stand alone inverter operation. Inverter to follow generator frequency up to ± 3 Hz of the nominal output frequency during synchronized operation
Continuous Rating	as per system rating
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%
Regulation	≤ 2%
Phase Load imbalance	At least 30% between phases
Internal Protection System	<ul style="list-style-type: none"> • Inverter continuous overload • Short circuit protection • Over/under AC voltage protection

	<ul style="list-style-type: none"> • Over/under frequency protection • Over/under battery voltage protection
Display (Inverter/ MPPT Charger)	<ul style="list-style-type: none"> • Inverter O/P Voltage, Current, Frequency • Mains Voltage, Current, Frequency • Battery Voltage, Current • Mode of Operation, Active Faults • PV Voltage, Current, Instantaneous Power, Daily Generation, Total Generation(for each Solar Charger channel separately)
MCBs	<ul style="list-style-type: none"> • PV (each Channel) • Battery • Mains • Load
Environmental	
Operating Temperature Range	0-50 degrees ambient
Humidity	0-90% non condensing
Enclosure	IP-30

REMOTE MONITORING

All the relevant parameters of PCU should be available for remote monitoring over internet using GPRS based monitoring solution. The list of parameters should include:

Solar Charge Controller	PV Voltage, PV Current, PV power, Daily Generation, Total Generation. (all above parameters to be included for all MPPT channels individually)
Inverter/ Mains Charger	<ul style="list-style-type: none"> • Inverter Voltage, Current, Frequency • Mains Voltage, Current, Frequency • Battery Voltage, Current • Active Faults

3.5 Battery Bank

The batteries shall be for SPV application Lead Acid type AGM-VRLA or Tubular Gel, Battery Bank voltage will be 240V.

The batteries shall use 2V battery capacity to be designed for C10 rate. Charging instructions shall be provided along with the batteries. A suitable battery rack with interconnections & end connector shall be provided to suitably house the batteries in the bank. Battery shall conform as per IEC 61427 and / relevant IS specifications as per MNRE requirements. Undertaking letter of the above specifications must be submitted along with the consignment. The Battery should be warranted for a period of 5 years.

Features:

- The batteries shall be for SPV application and shall be Lead Acid type AGM-VRLA or tubular Gel.
- The batteries shall use 2V battery capacity to be designed for C10 rate.
- Charging instructions shall be provided along with the batteries.
- A suitable battery rack with interconnections & end connector shall be provided to suitably house the batteries in the bank.
- The batteries shall be suitable for recharging by means of solar modules via incremental / open circuit regulators.
- Battery interconnecting links shall be provided for interconnecting the battery in series and in parallel as needed and shall be Lead coated heavy duty copper strips.
- Connectors for inter cell connection (series / parallel) shall be maintenance free screws. Front covers shall be provided for each battery bank.
- Operating range: 0°C to +60°C.
- AH Efficiency: >95% and WH Efficiency: >85%
- Recombination Efficiency shall be >98%
- Self Discharge of battery shall be <0.5% per week at 27°C.
- The minimum warranty of the Battery should be 5 years.

3.6 DC Distribution Board (DCDB)

DCDB shall consist of MCBs of suitable specifications which can withstand respective flow of current, with the purpose of providing the option for isolating the battery bank & SPV arrays. Best quality Ah meter has to be installed to measure the cumulative charging & discharging status of battery bank.

3.7 AC Distribution Board (ACDB)

An ACDB shall be provided in between PCU and Loads. It shall have MCB of suitable rating for connection and disconnection of PCU from load. It shall have MCB's to supply power to control room loads such as fans, lighting loads and power plug sockets etc. It shall have energy meter to record energy supplied to loads.

3.8 Cables and accessories

All the cables and accessories including switches / circuit breakers / connectors shall be as per MNRE specification i.e. cables should conform to IEC 60227/ IS 694 and IEC 60502/ IS 1554 (Part – I & II) and switches / circuit breakers / connectors should conform to IEC 60947 (Part-I, II & III) or IS 60947 (Part-I, II & III) EN 50521. The bidder shall supply installation accessories, which are required to install and successfully commission the power plant.

3.9 Earthing and lightning protection

The array structure of the PV system shall be grounded properly using adequate number of earthing kits . The array structure of the PV yard shall be grounded properly using adequate number of earthing kits. All metal casing / shielding of the plant shall be thoroughly grounded to ensure safety of the power plant. The earthing resistance values shall conform to relevant IS/ Indian electricity rules.

The SPV Power Plant shall be provided with lightning & over voltage protections. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc.

3.10 Bidirectional Meter/ Net Metering

Net metering is the concept which records net energy between export of generated energy and import of Discom energy for a billing month. Alternatively, the meter, having the feature of recording both the import and export values, besides other parameters notified by CEA metering regulations and Discom procedures in vogue, shall also be allowed for arriving net energy for the billing period. Bi- Directional Meter can record the Import and Export Energy.

Based on available roof area solar PV panels will be installed on the roof of the building. The output of the panels (DC electricity) connects to the power conditioning unit / inverter which converts DC to AC. The inverter output will be connected to the control panel or distribution board of the building to utilize the power. The inverter synchronizes with grid and also with any backup power source to produce smooth power to power the loads with preference of consuming solar power first. If the solar power is more than the load requirement, the excess power is automatically fed to the grid. For larger capacity systems connection through step up transformer and switch yard may be required to feed the power to grid. In case of grid failure, there should provision of protection for isolating the SPV plant from the grid.

4. Battery room and control room

The control room & the battery room shall be provided by the end users.

5. Quality and adaptability of the equipment

Interested Companies must verify the grid behavior, solar insolation levels and general site conditions on their own before bidding. The bidder shall accordingly ensure that the equipment and the design submitted shall be able to perform as per guaranteed performance levels in the available site conditions. The design of the plant and the equipment offered shall be evaluated for its quality and adaptability to the site conditions.

6. Manpower Training

The supplier/contractor shall train the users for the operation & maintenance of the plant.

Format for Covering Letter

NIB No: 28 /JREDA/SPV/Rooftop/2013-14

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

To,

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

Sub: Design, Manufacture, Testing, Supply, Installation & Commissioning of indigenous Grid connected Rooftop SPV Power Plants including five years Comprehensive Maintenance Contract (CMC) on Turnkey basis in the state of Jharkhand

Sir,

We are hereby submitting our offer in full compliance with the terms and condition of the above NIB No. A blank copy of the tender, duly signed on each page is also submitted as a proof of our acceptance of all specifications as well as terms & Conditions. We have submitted the requisite amount of “Earnest Money” in the form of Bank Guarantee, valid for twelve months.

We confirm that, we have the capability to supply and install the required no of systems within scheduled period.

The tender is submitted in two separate and sealed envelopes marked **Part-I & Part-II**.

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

Check List of Technical bidNIB No: 28 /JREDA/SPV/Rooftop/2013-14

S. No.	Particulars	Yes / No	Flag No.*	Page No.
1	Covering Letter as per Annexure-1 .		I	
2	Information about the Bidder as per Annexure-6 .		II	
3	The bidder is registered PV System Integrator or Manufacturing company of SPV cells or PV Modules or Battery or PV System Electronics conforming to relevant National/International Standards (Attach relevant certificates of Industry Department or MNRE).		III	
4	To indicate the functionality of the firm attach the balance sheet of last three years ending 31.03.2013 of the firm duly certified by statutory Auditor.		IV/V/VI	
5	Registration certificate of MSME of Jharkhand State (Enclose certificate issued by Industry Department, Govt. of Jharkhand).		VII	
6	The proof of supply /execution of SPV items in any SNA/Govt. organization/PSU in the last seven years as per Annexure-4 . Attach copy of the order and certificate indicating its successful execution.		VIII/IX Series	
7	IEC/IS certificates for Solar PV Module (Attach relevant certificate).		X	
8	IEC/IS certificate for Electronics and test certificate of Inverter (Attach valid relevant certificates).		XI	
9	Certificate of Battery (Attach valid certificate).		XII	
10	A copy of valid VAT/ TIN registration certificate		XIII	
11	Undertaking from bidder that they have resources and capability to supply the offered quantity within scheduled period as per Annexure-3 .		XIV	
12	Average Annual Turnover for last three years ending 31.03.2013. (Attach average annual turnover certificate as per Annexure-12)		XV	
13	Net worth as on 31.03.2013. (Attach proof & Net worth certificate as per Annexure-13)		XVI	
14	Details of tender document fee (Bank Draft No. and Date)		XVII	
15	Details of Earnest money (Bank Guarantee No. and Date) as per Annexure-9 .		XVIII	
16	Technical Details as per Annexure-8 .		XIX	
17	Declaration by Bidder as per Annexure-7 .		XX	
18	Product Leaflet/Catalogue (if any).		XXI	
19	A tentative overall supply schedule in the form of Bar Chart.		XXII	
20	Authority Letter for Signing Bid Document & Attending Bid Opening Meeting as per Annexure-11 .		XXIII	
21	Confirm whether you have prepared all the bid documents in a spiral binding /hardbound booklet. In case of non-compliance, the bid may be rejected with the consent of JREDA Purchase Committee.			
22	Confirm whether all pages have been serially numbered. In case of non-compliance, the bid may be rejected with the consent of JREDA Purchase Committee.			
23	Confirm that the authorized representative has signed all the pages of bid document. In case of non-compliance, the bid may be rejected with the consent of JREDA Purchase Committee.			
24	Confirm whether you have signed (with company seal) all the pages of bid document & enclosed with the bid. In case of non-compliance, the bid may be rejected with the consent of JREDA Purchase Committee.			

** Please flag the annexure and write flag number as in the box.*

Please ensure:

- i) That all informations are provided strictly in order mentioned in the check list 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 conditions mentioned therein.

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

Format for Undertaking to confirm having Capability & Resources

NIB No: 28 /JREDA/SPV/Rooftop/2013-14

To,

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

Dear Sir,

Sub: Design, Manufacture, Testing, Supply, Installation & Commissioning of indigenous Grid connected Rooftop SPV Power Plants including five years Comprehensive Maintenance Contract (CMC) on Turnkey basis in the state of Jharkhand.

We certify that we have the resources and capability to supply and install the offered quantity within scheduled period. We confirm that we are aware that these resources and capability have been assessed on the basis of MNRE benchmark cost for SPV Systems.

Signature of Chief Executive Officer/Managing Director

Date:

Note: The above response sheet should be signed and certified as true by the Chief Executive Officer/ Managing Director being full time Director.

Details of Orders Received and Executed in Last 5 Years

NIB No: 28 /JREDA/SPV/Rooftop/2013-14

Details of Orders Received & Executed by the Bidder for Supply of **SPV Power Plant** to SNA/ Govt. Organization during Last five years.

SL. No.	Name of Agency/ Organization	Purchase Order No., Date & Ordered Qty.	Name of Model	Delivery Schedule/Co mmissioning Schedule	Qty. Supplied Within Delivery Schedule	Qty. Supplied After Delivery Schedule	Date of Full Supply/Comm issioning

Yours faithfully,

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

Note:

- (a) Attach Photocopies of Purchase 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 duly signed. This bid Proforma must be submitted duly signed in case separate sheet is submitted

Part-II PRICE BID

NIB No: 28 /JREDA/SPV/Rooftop/2013-14

Sub: Design, Manufacture, Testing, Supply, Installation & Commissioning of indigenous Grid connected Rooftop SPV Power Plants including five years Comprehensive Maintenance Contract (CMC) on Turnkey basis in the state of Jharkhand.

Design, Manufacture, Testing, Supply, Installation & Commissioning of indigenous Grid connected Rooftop SPV Power Plants including five years Comprehensive Maintenance Contract (CMC) on Turnkey basis.			
S. N.	Site/ District	Capacity (In kWp)	Quoted Price (In Rs.)

- 1 The ranking of bidders for each site will be done separately.**
- Above quoted price for **Solar Power Plants** are complete in all respect as per Technical Specifications inclusive of all Central/State/Local taxes & duties, packing, forwarding, transit insurance, loading & unloading, transportation & other charges etc. FOR destination in Jharkhand and inclusive of installation, testing, commissioning, operation & maintenance, performance testing and training.
- Certified that rates quoted for **Solar Power Plants** are as per specifications, terms & conditions mentioned in the bid document.

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

(This bid Proforma must be submitted duly signed in case separate sheet is submitted)

Information about the Bidding Firm

NIB No: 28 /JREDA/SPV/Rooftop/2013-14

(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-11)	
8.	Nature of Firm (Proprietorship/Partnership /Pvt. Ltd./Public Ltd. Co./Public Sector)	
9.	Permanent Account Number (PAN)/TIN (Attach proof)	
10.	Firm's Registration Number (Attach proof)	
11.	Sales Tax/Value Added Tax Registration Number (Attach proof)	
12.	Specify the Item Originally Manufactured (SPV module/Electronics/Battery) (Attach copy of Registration Certificate of Industry Department)	
13.	Details of in-house testing facility (Attach Proof)	
14.	Office/ Dealer and Service network in Jharkhand with TIN No.(Give details)	
15.	Quoted quantity	

16.	Particulars of Earnest Money	
17.	Place where Materials will be Manufactured	
18.	Place where Materials will be Available for Inspection	
19.	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: 28 /JREDA/SPV/Rooftop/2013-14

(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 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 from similar type of work 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:

Technical Detail of the Equipment to be Supplied
NIB No: 28 /JREDA/SPV/Rooftop/2013-14

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

S. N.	Particulars	Details
1	Mounting arrangement for Solar module	:
2	Solar module frame material	:
3	Module type	:
4	No. of solar cells per module	:
5	Make of Solar module (Attach IEC Certificate)	:
6	Country	:
7	Weather resistant HDPE junction Box (IP55)	:
8	Max. Temperature rise of solar cells under severe working condition over max. ambient temperature	:
9	Nominal voltage	:
10	Operating voltage of solar module (nom)	:
11	Peak power voltage (Vmp)	:
12	Peak Power current (Imp)	:
13	Open circuit voltage (Voc)	:
14	Short circuit current (Isc)	:
15	Make of PCU and Origin	:
16	Make of Battery and Origin	:
17	Type of Battery	:
18	No. of Battery	:
19	Each Battery Voltage	:
20	Each Battery Ah	:
21	Battery Bank rating (Voltage & Ah)	:

27. Undertaking

- a) We agree to manufacture and supply quality Solar Power Plant as per NIT specifications.
- b) We agree to give performance guarantee as specified and to abide by the scope of the guarantee as prescribed under the tender document.
- c) 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:

1. The **SPP** components will be generally guaranteed as per General Terms & Conditions. The manufacturer can also provide additional information about the system and conditions of Guarantee as necessary. 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.

Format for Submitting Bank Guarantee for Earnest Money

NIB No: 28 /JREDA/SPV/Rooftop/2013-14

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

The Director,
Jharkhand Renewable Energy Development Agency
3rd Floor, S.L.D.C. Building, Kusai, 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, 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.

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 No.:

NIB No:...../JREDA/SPV/Rooftop/2013-14".

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 No. : **NIB No:...../JREDA/SPV/Rooftop/2013-14**" in this regard, shall be final and binding on us and we shall not be entitled to question the same.

1. Notwithstanding anything contained in the foregoing, our liability under this Guarantee shall be restricted to Rs. (Rupees only).
2. 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.
3. We shall not revoke this Guarantee during its currency except by your consent in writing.
4. 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.

5. 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.
6. 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 Delivery of Solar Systems received by the Consignee as Proof of Compliance by the Supplier

NIB No: 28 /JREDA/SPV/Rooftop/2013-14
१६.१६

Consignee/प्राप्त कर्ता का नाम :पदनाम:

विभाग का नाम:

विभाग का पता :

प्रमाणित किया जाता है कि सोलर फोटोभोल्टाईक कार्यक्रम के अंतर्गत सोलर पावर प्लांट हेतु निम्नलिखित उपस्कर प्राप्त किये गये:-

1. सोलर मॉड्यूलस की संख्या एवं क्षमता-
2. मॉड्यूल हेतु स्ट्रक्चर की संख्या:.....
3. बैट्री की संख्या एवं प्रकार :.....
4. इन्वर्टर (पी0सी0यू0) की संख्या एव प्रकार:.....
5. जंक्शन बॉक्स की संख्या:.....
6. तार आदि.....

इन सोलर उपस्करों की आपूर्ति मेसर्स द्वारा की गई है।

Consignee का हस्ताक्षर:

जेडा प्रतिनिधि का प्रमाण-पत्र

यह प्रमाणित किया जाता है कि उपर इंगित सामानों का निरीक्षण Specification के अनुसार प्राप्त करके उपर इंगित प्राप्त कर्ता को सुपूर्द की जा चुकी है।

Format of Power of Attorney for Signing Bid

NIB No: 28 /JREDA/SPV/Rooftop/2013-14
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 **Design, Manufacture, Testing, Supply, Installation & Commissioning of indigenous Grid connected
Rooftop SPV Power Plants including five years Comprehensive Maintenance Contract (CMC) on Turnkey basis in the
state of Jharkhand**, 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

Accepted

..... (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.

Format For Financial Requirement – Annual Turnover

NIB No: 28 /JREDA/SPV/Rooftop/2013-14

[On the letterhead of Bidding Company]

To,

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

Dear Sir,

Sub: Design, Manufacture, Testing, Supply, Installation & Commissioning of indigenous Grid connected Rooftop SPV Power Plants including five years Comprehensive Maintenance Contract (CMC) on Turnkey basis in the state of Jharkhand. 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. 2013.

Authorised Signatory
(Power of Attorney holder)

Statutory Auditor
(Stamp & Signature)

Date:

Format For Financial Requirement - Net Worth Certificate

NIB No: 28 /JREDA/SPV/Rooftop/2013-14

[On the letterhead of Bidding Company]

To,

The Director,

Jharkhand Renewable Energy Development Agency,

3rd Floor, S.L.D.C. Building, Kusai, Doranda

Ranchi- 834002.

Dear Sir,

Sub: Design, Manufacture, Testing, Supply, Installation & Commissioning of indigenous Grid connected Rooftop SPV Power Plants including five years Comprehensive Maintenance Contract (CMC) on Turnkey basis in the state of Jharkhand

This is to certify that Net worth of _____ {insert the name of Bidding Company}, as on 31st March 2013 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 2013	

Authorised Signatory

(Power of Attorney holder)

Statutory Auditor

(Stamp & Signature)

Format for Quarterly CMC Report

NIB No: 28 /JREDA/SPV/Rooftop/2013-14

[On the letterhead of Bidding Company]

To,

The Director,

Jharkhand Renewable Energy Development Agency,

3rd Floor, S.L.D.C. Building, Kusai, Doranda

Ranchi- 834002.

Dear Sir,

Sub: Design, Manufacture, Testing, Supply, Installation & Commissioning of indigenous Grid connected Rooftop SPV Power Plants including five years Comprehensive Maintenance Contract (CMC) on Turnkey basis in the state of Jharkhand

Date of Installation.....

JREDA Dispatch Order No..... Dated.....

Place of Supply.....

S. N.	Place of Installed System	System Details		Date of Site Visit	CMC activities undertaken by Technician	Name and Signature of Concerned field Officer of JREDA	Name and Signature of Controlling Officer of JREDA
		Module No.					
		Battery No.					
		PCU /Inverter No.					
		Module No.					
		Battery No.					

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal: