

**Expressions of Interest for  
Solar Photovoltaic Backup Power System  
For Palamu Tiger Project, Daltonganj**

**Under  
Off grid & Decentralized  
Solar Photovoltaic Programme  
For Financial Year 2010-11**

**Sponsored by  
Ministry of New & Renewable Energy  
Government of India, New Delhi**

**&**

**Government of Jharkhand**



**Jharkhand Renewable Energy Development Agency (JREDA)**

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## Expression of Interest

**EOI NO.JREDA/SPV/SPBPS/02/2010-11**

**Date:04.02.2011**

Sealed bids in two parts separately containing Techno-Commercial offer along with EMD (Part-I) and price offer (Part-II) for Design, Manufacture, Testing, Supply, Installation and Commissioning of Indigenous Solar Photovoltaic Backup Power System (power plant) on **Turnkey basis** including 5 years CMC on the complete system of 1, 2, 3, 6, 8 & 10 kW capacity of Solar Power Plant in Wild life Forest Division, Palamu Tiger Project, Core & Buffer Area, Daltengonj, Palamu.

Bids are invited from reputed, experienced and financially sound manufacturing units of India by JREDA, Ranchi on **Turnkey basis**. Eligible bidder may quote their offer as per the details mentioned.

1.	Nature of work	Design, Manufacture, Testing, Supply, Installation and Commissioning of Indigenous Solar Photovoltaic Backup Power System on <b>Turnkey basis</b> including 5 years CMC on the complete system in Wild life Forest Division, Palamu Tiger Project, Core & Buffer Area, Daltengonj, Palamu.
2.	Tentative Quantity	10 kWp – 1 No, 8 kWp – 1 No, 6 kWp – 1 Nos., 3 kWp – 2 Nos., 2 kWp – 3 No. 1 kWp – 1 No. The number of systems required is tentative & is subject to increase or decrease depending on actual requirements at the time of placing order and resources available
3.	Earnest Money Deposit	❖ Rs. 1,50,000/- (One Lac Fifty Thousand only) ❖ Rs. 75,000/- (Rupees Seventy Five Thousand only) for SSI units registered in the state of Jharkhand. ❖ <b>Nil</b> for SSI units registered in Jharkhand as well as with NSIC.
4.	Cost of Bid document (Non-refundable)	❖ Rs. 10,000/- (Rupees Ten Thousands only) for general Bidder. ❖ Rs. 5,000.00 (Rupees Five Thousand only) for SSI units registered in Jharkhand. ❖ <b>Nil</b> for SSI units registered in Jharkhand as well as with NSIC.
5.	Time of completion	90 days from the date of issue of work order/ intimation.
6.	Date of sale of bid document	<b>04-02-2011</b> from 10.30 am to 5.00 pm on all working days
7.	Last date & time of submission of bid	<b>14-02-2011</b> till 12:00 Noon.
8.	Date & time of opening Part-I & EMD	<b>14-02-2011</b> at 12:30 P.M.
9.	Validity of offer	The offer shall remain valid upto 180 days from the date of submission of offer.
10.	Place of issue and submission of bid documents and address for communication	Jharkhand Renewable Energy Development Agency(JREDA) Plot No. 328/B, Road No.4,Ashok Nagar Ranchi- 834002 Ph.No: 2246970,Fax No: 0651-2240665 Web site: <a href="http://www.jreda.com">www.jreda.com</a> E-mail: <a href="mailto:info@jreda.com">info@jreda.com</a>

Director,  
JREDA, Ranchi

## 2. Notice Inviting Expression of Interest

**EOI No. : JREDA/SPV/SPBPS/02/2010-11**

**Date : 04.02.2011**

To,

M/s .....

.....

.....

**Sub : Design, Manufacturing, Testing, Supply, Installation, & Commissioning, of Indigenous Solar Photovoltaic Backup power system (Power Plant) on turnkey basis including 5 Years Comprehensive Maintenance Contract (CMC) on the complete system in wild life forest division, Palamu Tiger Project, Core & Buffer Area, Daltonganj, Palamu under Off grid & Decentralized Solar Photovoltaic Program for Jharkhand Renewable Energy Development Agency during Year 2010-11.**

Dear Sir/Madam,

Jharkhand Renewable Energy Development Agency (JREDA), Ranchi has pleasure in inviting offers from eligible Indian bidders for the above work with your best binding 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 16 chapters. 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 producing a Demand Draft drawn in favour 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 chapter 1 (Bid Details).

2.2 Bidders can also download the bid document from JREDA website ([www.jreda.com](http://www.jreda.com)) and submit the cost of the bid document of requisite value, 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 General & SSI Unit registered with Govt. of Jharkhand shall submit in Part – I (Technical Bid) the earnest money in the form of bank guarantee of requisite value as mentioned in chapter 1 (Bid Details). The format for the bank guarantee is given in chapter 14 (Proforma - IX). The bank guarantee shall be made in favour of “Director, JREDA” payable at Ranchi from any Indian Nationalized bank/Scheduled bank.
- 3.2 This bank guarantee shall remain valid for 12 months from the last date of submission of bids.
- 3.3 Bidders (SSI With NSIC) seeking concession/exemption from submission of cost of bid document and/or earnest money, will have to submit an attested photocopy of relevant SSI unit certificate issued from the Govt of Jharkhand and from NSIC (if applicable), in Part – I of the bid application.
- 3.4 Bidders failing to submit earnest money or submitting relevant SSI & NSIC registration certificates from the Govt. of Jharkhand and from NSIC (as the case may be), will be rejected.
- 3.5 The request for adjustment of earlier dues in place of earnest money will not be entertained.
- 3.6 The earnest money shall be returned to all unsuccessful bidders, **within thirty days** from the date of placement of LOI/LOA to the successful bidder(s).
- 3.7 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 will have to get approval by Director, JREDA. This approval will also have a cut-off date by which the entire work will have to be completed.

### **4. Security Deposit / Performance Guarantee**

- 4.1 Successful general bidders shall submit a security deposit 10 % in the form of bank guarantee of the allotted work order value on or before 15 days from issuing work order.
- 4.2 Successful bidders registered as SSI Unit with Govt. of Jharkhand shall submit a security deposit 5 % in the form of bank guarantee of the allotted work order value on or before 15 days from issuing work order.
- 4.3 Successful bidders registered as SSI Unit with Govt. of Jharkhand & NSIC shall submit a security deposit of 20 % of 10 % in the form of bank guarantee of the allotted work order value on or before 15 days from issuing work order.

The Security Deposit shall be refunded after expiry of 90 days from the actual date of installation & commissioning.

## **5. Submission of Bids**

- 5.1 Bidders are advised to submit their bids strictly based on the specification, terms and conditions contained in the bid document and subsequent revisions/amendments, if any.
- 5.2 The bid shall be prepared and submitted by typing or printing in English with indelible black ink 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, shall not be considered for the purpose of evaluation.
- 5.3 Original copy of bid document, amendments/revisions to bid document, including minutes of meeting(s), issued by JREDA, if any, shall be signed and submitted along with the bid.
- 5.4 All the Proformas must be on the bidder's official letterhead. Any change in wording of the Proforma will lead to rejection of the bid application.
- 5.5 The offer shall contain no erasures or overwriting except as necessary to correct errors made by bidder. The person signing the offer, if any, shall initial such corrections.
- 5.6 **Original copy of Bid Document should be submitted in Hard Bond or Spiral Binding otherwise bid will be rejected.**

## **6. Mode of Submission of Bids**

- 6.1 The Part – I (Technical Bid) and the Part – II (Financial Bid) should be sealed in separate envelopes and both these envelopes should be sealed in a third envelope. The Part – II (Financial Bid) of only such bidders would be opened who qualify in the Part – I (Technical bid).
- 6.2 The Part – I (Technical Bid) should be sealed in an envelope super scribed (i) “EOI No.: JREDA/SPV/SPBPS/02/2010-11”, (ii) “Part – I (Technical Bid)”, (iii) Name and address of the contact person of the bidding firm, and (iv) should be addressed to Director, JREDA. This envelope should contain the following :
  - (i) Cost of bid document (for the bidders who have downloaded the bid document from JREDA web site) or copy of demand draft/money receipt if purchased from JREDA office.
  - (ii) Original earnest money in the form of bank guarantee of requisite value (in Proforma- IX).
  - (iii) Copy of registration certificate of the firm.
  - (iv) For availing concession/exemption in submission of cost of bid document and earnest money by SSI Unit registered in Jharkhand, bidder should submit attested copy of relevant SSI registration certificate from Govt. of Jharkhand and from NSIC clearly indicating validity and monetary limit as applicable.
  - (v) Properly filled, signed & stamped Proforma - I, Proforma – II, Proforma – III, Proforma – IV, Proforma –V and Proforma-VI.
- 6.3 Part – I (Technical Bid) should not contain price of any item. Such cases, even if found anywhere, shall not be given any cognizance.
- 6.4 Part – I (Technical Bid) should be submitted in original plus 1 copy (1+1)

6.5 The Part – II (Financial Bid) should be sealed in an envelope super scribed (i) “EOI No.: JREDA/SPV/SPBPS/02/2010-11”, (ii) “Part – II (Financial Bid)”, (iii) Name and address of the contact person of the bidding firm, and (iv) Should be addressed to Director, JREDA. This envelope should contain the following :

- (i) It should contain only Performa – VII & VIII duly filled-up in both figures and words and signed with stamp by authorized signatory of the bidder.
- (ii) 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.

6.6 Part – II (Financial Bid) should be submitted in original only (1+0).

6.7 Both, 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) “EOI No: JREDA/SPV/SPBPS/01//2010-11”, (ii) "Offer for Design, Supply, Installation and Commissioning & CMC of Solar Photovoltaic Backup Power System under Off grid and Decentralized Solar Photovoltaic Program"., (iii) Name and address of the contact person of the bidding firm, and (iv) Should be addressed to Director, JREDA.

## **7. Scope of Work**

7.1 The scope of work shall be as indicated in the Bid Details.

7.2 JREDA reserves the right to amend the scope of work, accept or reject any or all the offers/bids, in part or in full or cancel/withdraw the invitation for bids without assigning any reasons whatsoever and in such case, the bidder/intending bidder shall have no claim arising out of such action.

7.3 The Bidder shall carefully check the specification and shall satisfy himself regarding the technical requirements and completeness of the equipment/system.

## **8 Price**

8.1 The Bidder shall quote price as per Proforma – VII & VIII. Price quoted shall be firm & binding and shall not be subject to any variation whatsoever, on any account except for statutory variation on taxes & duties during contractual completion period.

8.2 The price should be inclusive of all taxes, duties, levies, etc. as on date.

## **9 Terms of Payment**

9.1 Subject to any deductions, which JREDA may be authorized to make under the terms of the order, the contract price shall be payable as per general clauses of contract enclosed.

## **10 Authority of Person Signing the Documents**

- 10.1 Authorization letter as per Proforma – III with the seal of the company for the person signing the bid document or attending the bid-opening meeting should be furnished.
- 10.2 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 bind such offer/ document and if on enquiry it appears that the person signing 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.

## **11 No Claim or Compensation for Submission of Tender**

- 11.1 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 bid. .

## **12 Eligibility and Qualification Criteria**

The bidder shall meet the following requirements:

### **12.1 For General Bidders**

- Should be a reputed supplier of Solar Photovoltaic based systems and who manufactures at least one or more major sub-systems (Viz. PV modules or battery or electronics) used in Solar Photovoltaic Backup Power System.
- Should have adequate facilities for testing of Solar Photovoltaic Backup Power System.
- Manufacturer must possess adequate facilities and shall have registered office/dealer/service network in the state for providing after sales services and CMC.
- Turn over during past two years (i.e. 2008-09 & 2009-10) should be minimum 25 lacs in any one year.
- The bidder should have supplied and successfully installed and commissioned a complete Solar Photovoltaic Backup Power System of capacity in the range of 1-10 kWp to any State Nodal Agency/Govt. Organization in the last 5 years and supplies against such work order should have been completed satisfactorily as certified by the State Nodal Agency concerned.

**To meet the requirement under (12.1) the bidder shall furnish registration certificate clearly indicating that they are manufacture of PV Modules/ Battery/ Electronics as applicable. Bidder shall also submit list of testing facilities along with their photographs and attested photocopy of the certificate issued by the concerned Nodal Agency /Govt. organization indicating successful installation and commissioning of Solar Photovoltaic Backup Power System mentioned above and the copy of work order.**

### **12.2 For the bidders who are SSI units registered with Govt. of Jharkhand or SSI units registered with GOJ as well as with NSIC.**

- Should be a reputed supplier of Solar Photovoltaic based systems and who manufactures at least one or more major sub-systems (Viz. PV modules or battery or electronics) used in Solar Photovoltaic Backup Power System.
- Should have adequate facilities for testing of Solar Photovoltaic Backup Power System.
- Manufacturer must possess adequate facilities and trained and skilled manpower for execution of after sales services & CMC in the State.
- Turn over during past two years (i.e. 2008-09 & 2009-10) should be minimum 10 lacs in any one year.

- The bidder should have supplied and successfully installed and Commissioned a complete Solar Photovoltaic Backup Power System of capacity in the range of 1-10 kWp to any State Nodal Agency/Govt. Organization in the last 5 years and supplies against such work order should have been completed satisfactorily as certified by the State Nodal Agency/Govt. organisation concerned.

**To meet the requirement under (12.2) the bidder shall furnish registration certificate clearly indicating that they are manufacture of PV Modules/ Battery/ Electronics as applicable. Bidder shall also submit list of testing facilities along with their photographs and attested photocopy of the certificate issued by the concerned Nodal Agency/Govt. organisation indicating successful installation and commissioning of Solar Photovoltaic Backup Power System mentioned above and a copy of the work order.**

- 12.3 The bidder should have registered office/dealers in Jharkhand as per JVAT Act. - 2005 and should have local service setup for smooth running of CMC.

### **13 Validity of Offer**

- 13.1 Unless otherwise specified, the bidder shall keep his tender valid initially for a period of 180 days from the due date of submission of the offer.

### **14 Other Terms & Conditions**

- 14.1 For availing any concession in the cost of bid document or earnest money, the SSI Unit bidder shall have to furnish attested copies of valid SSI registration certificate (all pages) issued by the Govt. of Jharkhand and/or from NSIC clearly indicating validity & monetary limit, as applicable.
- 14.2 For availing any concession in the cost of bid document or earnest money, the SSI Unit bidder shall have to furnish a certificate from Department of Industries, Govt. of Jharkhand / NSIC as applicable or an affidavit from a Notary Public that the unit is functional.
- 14.3 Insertion, post-script, addition and alteration shall not be recognized unless confirmed by bidder's signature and stamp.
- 14.4 Incomplete tender or tenders not submitted as per requirement as indicated in the EOI are likely to be rejected.
- 14.5 Bidders shall submit their offer strictly as per terms and conditions of the tender document without any deviation.
- 14.6 If at any time any of the documents/information submitted by the bidder is found to be incorrect, false or untruthful, the bid and/or the resultant order may be summarily rejected/ cancelled at the risk of the bidder.
- 14.7 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.
- 14.8 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.
- 14.9 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.
- 14.10 No postal transaction shall be entertained for obtaining bid documents.
- 14.11 Issuance of bid documents shall not construe that the bidders would be automatically considered qualified.
- 14.12 A Gazetted Officer or Notary Public must do attestation of various documents enclosed along with the offer.

## **3.0 General Terms & Conditions**

### **1.0 Introduction**

**1.1** 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.

**1.2** 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, be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

### **2.0 Scope of work**

The general scope under this contract includes design, manufacture, shop testing, inspection, packing & forwarding, transportation up to project site loading & unloading, storage in safe custody, erection, carrying out preliminary tests at site, commissioning, performance testing & handing over to the purchaser all the equipment installed including the insurance coverage from the concept to commissioning period including operation and comprehensive maintenance contract.

### **3.0 Bid documents**

Tender documents shall comprise of all the documents mentioned in the table of contents of this documents. 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 Cost of Bid**

Non-refundable cost of bid document shall be submitted by the bidder during purchasing of bid document in the form of Demand Draft from any Indian Nationalized Bank/Scheduled Bank, drawn in favour of Director, JREDA, Ranchi/money receipt. The cost of bid documents shall be

- Rs. 10,000/- (Rs. Ten Thousand only)
- Rs. 5,000/- (Rs. Five Thousand only) for SSI units registered with Government of Jharkhand
- Rs. Nil for SSI units registered in Jharkhand as well as with NSIC.

Bidders downloading the bid document from JREDA web-site shall submit the cost of bid at the time of submission of their bid inside Part-I envelope along with EMD failing which their bid will be summarily rejected.

### **5.0 Earnest Money**

Bid must be accompanied with required amount as earnest money in the form of demand draft or bank guarantee drawn in favour of the director JREDA on any Indian nationalized/ Scheduled bank payable at Ranchi. This shall be enclosed with Part-I of offer (Techno-commercial bid). The earnest money deposit shall be

- Rs. 1,50,000/- (Rs. One Lac Fifty Thousand only).
- Rs. 75,000/-(Rs. Seventy Five Thousand Only) for SSI units registered in Jharkhand.
- Rs. Nil for SSI units registered in Jharkhand as well as with NSIC.

- 5.1** Earnest money shall be returned to unsuccessful bidder within 30 days from the date of issue of letter of indent/work order on the successful bidder.
- 5.2** The Earnest money will be forfeited if any bidder withdraws his offer during the validity period if the successful bidder fails to furnish his acceptance of order letter within specified time or fails to start the work and execute it within the specified time frame.
- 6.0 Submission of offer**
- The offer shall be prepared by typing or printing in English with black ink on letter head of the manufacturer in consecutively numbered pages duly signed by the authorized signatory of the manufacturer with seal of the firm affixed on each page.
- 6.1** Original copy of the bid document, amendments/ revisions to bid documents issued by JREDA, (if any) shall be signed and submitted along with the bid.
- 6.2** The offer shall be free from overwriting but if any corrections are made, the person signing the offer should initiate the same.
- 6.3** The Part-I i.e. the Technical bid shall be submitted in Hard bond or Spiral binding complete with the followings:
- a) Complete tender documents as purchased from JREDA or downloaded in full from JREDA web site must be duly filled and signed (each page) by the authorized signatory with seal of the firm.
  - b) Cost of tender document (non refundable) purchase from JREDA Office or downloaded from JREDA web site, must be submitted in an envelope along with part-I of bid documents.
  - c) Earnest money of requisite value in one of the acceptable forms as specified shall be enclosed with part –I of the tender.
  - d) Registration certificate clearly indicating that they are manufactures of PV module/Battery/Electronics as applicable. The bidder shall also submit the list of in-house testing facility along with their photographs.
  - e) A letter in confirmation of meeting the eligibility condition and qualifications.
  - f) A copy Permanent Account Number (PAN) & recent passport photograph of Managing Director and all directors & CEO's of the company with name and address or photocopy of the passport.
  - g) GPS Co-ordinate (Longitude & Latitude) and digital photograph of registered office and factory campus showing their board etc.
  - h) Duly filled check list shall be enclosed.
  - i) Duly super scribed as part-I, Technical Bid
- 6.4** The Part-II i.e. the Price bid shall be submitted complete with the following:
- a) The price schedule should be duly filled both in figure and words. Each page to be duly signed by authorized person with seal of the firm. In case of any discrepancy between the price mentioned in figure and words, the price mentioned in words will be considered as final.
  - b) The price bid should not contain any technical matter or other matter except those related to price. The date of opening of the price bid will be notified after opening of Technical bid.
  - c) The price bid should be sealed in a separate envelope duly super scribed as Part-II, Price bid.
  - d) The envelop containing Part-I i.e. Technical and Part-II i.e. Price bid shall be put inside a third envelope along with a forwarding letter. The cover should be duly super scribed with EOI No. and due date and may be submitted either personally or by registered part addressed to the director, JREDA, Plot No. 328 B, Road No. -4, Ashok Nagar, Ranchi-834002.

**7.0 Price**

The bidder shall quote his price as per schedule of items of work. The contract price & units rates shall be firm and bindings 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 date opening of tender. The price shall also include designing, manufacturing, inspection, supply, transport, insurance, handling erection at site, testing, commissioning & 5 year CMC. All applicable charges for taking necessary clearance such as commercial tax, road permit etc. wherever required are included in the contract price.

**8.0 Performance Guarantee**

The contract shall furnish Bank Guarantee from a Nationalized Bank/ Scheduled Bank for an amount equal to 5% of the order value against performance guarantee for the due & faithful performance of the agreement along with their terms and conditions.

On due completion of work in all respects the earnest money and all payments due will be returned to the contract, without any interest on presentation of an absolute 'No Demand Certificate' form JREDA, provided always that JREDA shall be entitled to retain, deduct, set off or adjust any claim against the contractor from the money deposited with or becoming payable to JREDA.

**9.0 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:

An amount equivalent to 90% of the contract value of the items will be paid after completion of supply, installation, testing and commissioning. Another 10% of the contract value will be released after end of each year @ 2 % after submission of Satisfactory performance of the system. However, 10% of the contract value will be released against submission of Bank Guarantee (Proforma –X) of the requisite value for the complete CMC Period.

**10.0 Dispatch Instructions**

The manufacturers test report will be submitted for equipments dispatched to the site for setting up of Solar Photovoltaic Backup Power systems

Manufacturer's test report for items to be dispatched will be submitted to JREDA. JREDA reserves the right to get the equipment/material-tested by the consultant. The equipments will be supplied only after getting dispatch clearance from JREDA.

**11.0 Liquidated damages for delay in completion**

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 as pre-agreed liquidated damages a sum equivalent to ½ % of total contract value per week of such delay or part thereof, subject to maximum of 5% of the total contract value. The liquidated damages for delayed completion shall be recovered from the supplier's bill or security deposit.

**12.0 Insurance**

The supplier shall arrange for transit and erection insurance of the materials & equipments for setting up of Solar Photovoltaic Backup Power systems at his own cost.

**13.0 Assignment/ Sub-letting**

The contract shall not without the prior consent in writing of the purchase, assign or sublet or transfer his contract or a substantial part thereof provide that any such consent shall not relieve the contractor from any obligation, duty or responsibility under the contract.

**14.0 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 clause 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, lightning, 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.

**15.0 Completeness of Tender**

All fittings, assemblies, accessories, hardware items, civil & electrical works & safety devices as required shall be deemed to have been included in the tender, whether such items are specially mentioned in the BOQ or not.

**16.0 Compliance with regulations**

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

**17.0 Award of contract**

The contract/order shall be awarded to technically acceptable & lowest evaluated bidder.

**18.0 Agreement**

The supplier has to enter into an agreement in the office of the Director, JREDA, in prescribed format before commencement of supply.

**19.0 Arbitration**

All disputes would be settled within Ranchi jurisdiction of court of law only. All arbitration cases would only be settled under Arbitration & conciliation Act but at Ranchi only.

## **4.0 Technical Specification of Solar Photovoltaic Backup Power System**

### **General Description**

The Solar Photovoltaic Backup Power System shall have capacity of 1,2,3,6,8&10 kWp. The power plant shall provide a reliable and independent power supply to the critical AC loads in the Building. The Inverter shall be designed to convert DC power produced by SPV modules, in to AC power and adjust the voltage & frequency levels to suit the grid voltage & frequency.

### **1. Solar Photovoltaic Modules**

- The total Solar PV minimum array capacity should not be less than 1,2,3,6,8&10 KWp and should comprise of solar mono crystalline modules of minimum 200 Wp and above wattage. Module capacity less than minimum 200 watts should not be supplied. The Photovoltaic modules must be tested and certified by testing laboratory approved by Ministry of New and Renewable Energy, New Delhi, Govt. of India. The module type must be qualified as per IEC 61215 or IEEE 1262 or CEC 503 for monocrystalline silicon. SPV module conversion efficiency should be greater than 16.0% under STC and AM 1.5 radiation.
- The PV module shall perform satisfactorily in humidity up to 100 % with temperature between – 40<sup>0</sup>C to + 85<sup>0</sup>C. Since the modules would be used in a high voltage circuit, the high voltage insulation test shall be carried out on each module and a test certificate to that effect provided.
- Other general requirement for the PV modules and subsystems shall be the following:
  - (a) Raw materials and technology employed in the module production processes shall not be considered relevant so long as the given specifications are satisfied.
  - (b) The rated output power of any supplied module shall not have negative tolerance.
  - (c) The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary more than 3 (three) per cent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
  - (d) Except where specified, the front module surface shall consist of impact resistant, low-iron and high-transmission toughened glass.
  - (e) The module frame, if any, shall be made of a corrosion-resistant material that shall be electrolytically compatible with the structural material used for mounting the modules.
  - (f) The module shall be provided with a junction box with provision of external screw terminal connection and with arrangement for provision for by-pass diode. The box shall have hinged, weatherproof lid with captive screws and cable gland entry points or may be of sealed type.
  - (g) Necessary I-V curves at 25<sup>0</sup>c, 45<sup>0</sup>c, 60<sup>0</sup>c and NOC are required to be furnished. Offers to provide PV module warranty of 25 years with no more than 1% degradation in performance/annum and with a maximum limit of 20% over 25 years.

## 2. Array Structure

### PV Panel Structures

- 1 Wherever required, suitable number of PV panel structures shall be provided. Structures shall be of flat-plate design either I or L sections.
- 2 Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. Galvanizing should meet ASTM A-123 hot dipped galvanizing or equivalent, which provides at least spraying thickness of 70 microns on steel as per IS5905, if steel frame is used. Aluminium frame structures with adequate strength and in accordance with relevant BIS standards can also be used.
- 3 Structures shall be supplied complete with all members to be compatible for allowing easy installation at the rooftop site.
- 4 The structures shall be designed to allow easy replacement of any module.
- 5 Each structure shall have a provision to adjust its angle of inclination to the horizontal as per the site conditions.
- 6 Each panel frame structure be so fabricated as to be fixed on the rooftop column/wall structures. The structure should be capable of withstanding a wind load of 200 km/hr after grouting & installation. The front end of the solar array must be one meter above the rooftop. Grouting material for SPV structure shall be as per M15(1:2:4) concrete specification
- 7 The structures shall be designed for simple mechanical and electrical installation. There shall be no requirement of welding or complex machinery at the installation site. If prior civil work or support platform is absolutely essential to install the structures, the supplier shall clearly and unambiguously communicate such requirements along with their specifications in the bid. Detailed engineering drawings and instructions for such prior civil work shall be carried out prior to the supply of Goods.
- 8 The supplier shall specify installation details of the PV modules and the support structures with appropriate diagrams and drawings. Such details shall include, but not limited to, the following;
  - a) Determination of true south at the site;
  - b) Array tilt angle to the horizontal, with permitted tolerance
  - c) Details with drawings for fixing the modules
  - d) Details with drawings of fixing the junction/terminal boxes
  - e) Interconnection details inside the junction/terminal boxes
  - f) Structure installation details and drawings
  - g) Electrical grounding (earthing)
  - h) Inter-panel/Inter-row distances with allowed tolerances; and
  - i) Safety precautions to be taken.

The array structure shall support SPV modules at a given orientation and absorb and transfer the mechanical loads to the rooftop columns properly. All nuts and bolts shall be of very good quality stainless steel. Detailed design and Drawing shall have to submit to JREDA for acceptance and approval before execution of work.

### **3. Battery Bank**

Battery bank comprising of batteries (as per Annexure-I) conforming to IS 1615 and following specification should be supplied, installed, and commissioned:

1. Battery Type: VRLA Maintenance free battery
2. Individual Cell Voltage: 2 V rated at 27°C
3. Individual Cell Ah capacity: Annexure 1(C/10 rate at 27 °C / Max. SPV Charging Current)

The following additional information on the batteries to be supplied:

1. Overcharge Voltage
2. Load disconnect voltage
3. Modules reconnect voltage
4. Float voltage
5. Temperature compensation required for a proper operation
6. Ampere hour efficiency / Watt hour efficiency

### **4. Power Conditioning Unit**

Power Conditioning Unit (PCU) shall comprise of Charge controller and MPPT, Inverter, Voltage-stabilizer, and Distribution Panel along with necessary Displays, Indicators and Alarms.

### **5. Charge Controller & MPPT**

The charge controller and MPPT should preferably confirm to IEC 62109-3, IEC 62093 and IEC 62509 standards for requisite AC/DC Inputs:

1. Operational Voltage Range: Annexure 1
2. Series disconnect, PWM type
3. Controlling element: IGBTs
4. With required protections for Battery-bank
5. Provision for charging through AC Mains during night hours for 4-6 hours. The rate of charging through this mode should be the same as of corresponding SPV charging rate during Daytime.

### **6. Inverters**

Inverter(s) should be as per Annexure-I of Document preferably from Indian Manufacture having qualification as per IEC 61683, IEC 62109-2 & IEC 62093 or equivalent/better BIS standard:

1. Type: Self commuted, current regulated, high frequency IGBT based
2. Output Voltage :
  - a) For inverter 5 KVA & below:
    - Output Voltage: 230V AC, 1Ø systems
    - Output frequency: 50Hz
  - b) For inverter above 5 KVA:
    - Output Voltage:415 V AC ( +12.5 %, -20 % V AC ) , 3Ø systems
    - Output frequency: 50Hz
3. THD: Less than (<) 5 %

## **7. Other Features:**

1. Peak Efficiency: More than 95%
2. Efficiency at 50% of Load: About 90%
3. Efficiency at 10% of Load: More than 85%
4. Load detection Threshold: Less than 3%
5. Surge Protection: 150% of the rated capacity for a period of 10 seconds
6. Ambient temperature: -5 to 60°C
7. Ambient Humidity: As per location of specific site (less than 95% non-condensing in general)
8. Provision for connection of Data-logger to monitor at least ten system parameters & events logs.

## **8. Protection:**

1. AC Short circuit protection
2. Over-load protection
3. Under voltage & Over-voltage of battery and grid
4. Auto/Manual re-connects provision
5. Reverse polarity protection both for the PV array and Battery bank (DC).

## **9. Indicators / Displays / Alarms**

1. Digital Display(s) of Input DC SPV Voltage, & Current, along with Energy Meter,
2. Separate LED Indication of SPV & AC Charging,
3. Digital Display(s) AC Input Voltage / Frequency,
4. Digital Display of Input AC kWh Meter (Daily/Cumulative),
5. Digital Battery Charging Current,
6. Battery Charge Level LED Indicator(s)- Low, Medium, High, Full
7. Digital Display(s) AC Output Voltage / Frequency,
8. Digital Display of Output AC kWh Meter (Daily/Cumulative),
9. Battery Low Alarm / cutoff
10. Overload Alarm / cutoff
11. System Cutoff Indicator
12. System Reset Button

## **10. Electrical safety, earthing and protection**

- a) Internal Faults: In built protection for internal faults including excess temperature, commutation failure, overload and cooling fan failure (if fitted) is obligatory.
- b) Galvanic Isolation: Galvanic Isolation is required to avoid any DC component being injected into the grid and the potential for AC components appearing at the array.
- c) Over Voltage Protection: Over Voltage Protection against atmospheric lightning discharge to the PV array is required. Protection is to be provided against voltage fluctuations in the grid itself and internal faults in the power conditioner, operational errors and switching transients.
- d) Earth fault supervision: An integrated earth fault device shall have to be provided to detect eventual earth fault on DC side and shall send message to the supervisory system.

- e) Cabling practice: Cable connections must be made using PVC Cu cables, as per BIS standards. All cable connections must be made using suitable terminations for effective contact. The PVC Cu cables must be run in GL trays with covers for protection.
- f) Fast acting semiconductor type current limiting fuses at the main bus-bar to protect from the grid short circuit contribution.

The **Inverter** shall include an easily accessible emergency OFF button located at an appropriate position on the unit.

The **Inverter** shall include ground lugs for equipment and PV array grounding. The DC circuit ground shall be a solid single point ground connection in accordance with WEC 69042.

All exposed surfaces of ferrous parts shall be thoroughly cleaned, primed, and painted or otherwise suitably protected to survive a nominal 30 years design life of the unit.

The **Inverter** enclosure shall be weatherproof and capable of surviving **climatic changes and should keep the Inverter** intact under all conditions in the room where it will be housed. **The Inverter shall be located indoor and should be either wall/ pad mounted.** Moisture condensation and entry of rodents and insects shall be prevented in the **Inverter** enclosure.

Components and circuit boards mounted inside the enclosures shall be clearly identified with appropriate permanent designations, which shall also serve to identify the items on the supplied drawings.

All doors, covers, panels and cable exists shall be gasketed or otherwise designed to limit the entry of dust and moisture. All doors shall be equipped with locks. All openings shall be provided with grills or screens with openings no larger than 0.95 cm. (about 3x8 inch).

In the design and fabrication of the Inverter the site temperature ( $5^0$  to  $55^0$  C), incident sunlight and the effect of ambient temperature on component life shall be considered carefully. Similar consideration shall be given to the heat sinking and thermal for blocking diodes and similar components.

#### **11. Factory Testing:**

- a) The **Inverter** shall be tested to demonstrate operation of its control system and the ability to be automatically synchronized and connected in parallel with a utility service, prior to its shipment.
- b) Operation of all controls, protective and instrumentation circuits shall be demonstrated by direct test if feasible or by simulation operation conditions for all parameters that cannot be directly tested.
- c) Special attention shall be given to demonstration of utility service interface protection circuits and functions, including calibration and functional trip tests of faults and isolation protection equipment.
- d) Operation of start up, disconnect and shutdown controls shall also be tested and demonstrated. Stable operation of the **Inverter** and response to control signals shall also be tested and demonstrated.
- e) Factory testing shall include measurement of phase currents, efficiencies, harmonic content and power factor. All tests shall be performed at 25, 50, 75 and 100 percent of the rated nominal power.
- f) A factory Test Report (FTR) shall be supplied with the unit after all tests. The FTR shall include detailed description of all parameters tested qualified and warranted. G) Factory testing of the **Inverter/Inverters** should be carried out and witnessed by the Purchaser's Engineers at the manufacturers premises.

## 12. Operating Modes:

The following operating modes are to be made available:

- a) Night or Sleep mode: Where the inverter is almost completely turned off, with just the timer and control system still in operation, losses should not exceed 1 watt per 5 kilowatt.
- b) Standby mode: Where the control system continuously monitors the output of the solar generator until pre-set value is exceeded (typically 10 watts)
- c) Operational or MPP tracking mode: The control system continuously adjust the voltage of the generator to optimize the power available. The power conditioner must automatically re-enter stand-by mode when input power reduces below the standby mode threshold. Front Panel display should prove the status of the **Inverter**, including AC Voltage, Current, Power output & DC Current, Voltage and Power input, pf and fault Indication (if any)

## 13. DC Distribution Board

DC Distribution panel to receive the DC output from the array field with analog measurement panel for voltage, current from different MJBs so as to check any failure in the array field.

DC DPBs shall have sheet from enclosure of dust & vermin proof. The bus bars are to be made of copper of desired size. Suitable capacity MCBs control is provided for controlling the DC power output to the inverter along with necessary surge arrestors.

## 14. Common Ac Distribution Panel Board

AC Distribution Panel Board (DPB) shall control the AC power from inverter, and should have necessary surge arrestors. Main LT panel also to be installed at the building as per specifications mentioned in Annexure-III.

## 15. Cables

- 1) Cabling in the yard and control room: Cabling in the yard shall be carried out as per IE Rules. All other cabling above ground should be suitably mounted on cable trays with proper covers. Only FRLS cables should be used.
- 2) Wires: Only FRLS copper wires of appropriate size and of reputed make shall have to be used.
- 3) Cables Ends: All connections are to be made through suitable cable/lug/terminals; crimped properly & with use of Cable Glands.
- 4) Cable Marking: All cable/wires are to be marked with proper manner by good quality ferule or by other means so that the cable can be easily identified.

Any change in cabling schedule/sizes if desired by the bidder/supplier must get approved after citing appropriate reasons. All cable schedules/layout drawings have to be approved from the purchaser prior to installation.

- 5)
  - Multi Strand, Annealed high conductivity copper conductor
  - PVC type 'A' pressure extruded insulation
  - Overall PVC insulation for UV protection
  - Armoured cable for under ground laying
  - All cables shall conform to BIS standards (IS 694) and (IS 1554)
  - The size of each type of cable selected shall be based on minimum voltage drop; however, the maximum drop shall be limited to 2%
  - Selected cable should carry a current density of minimum 1.2Amp/Sq.mm

Array Junction Box, Main Junction Boxes with string monitoring feature to the inverter The junction boxes are to be provided in the PV yard for termination of connecting cables. The Junction Boxes shall be made of FRP/Powder Coated Aluminium with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JB's shall be such that input & output termination can be made through suitable cable glands.

- Made of GFRP or cast aluminium
- Copper bus bars/terminal blocks housed in the junction box with suitable termination threads
- Conforming to IP65 standards
- Hinged door with EPDM rubber gasket to prevent water entry.
- Single compression cable glands.
- Provision of earthing
- MOVs provided within the box to protect against lightning

**16. Tools & Tackles and Spares:** After completion of installation & commissioning of the power plant, necessary tools & tackles are to be provided free of cost by the contractor for maintenance purpose. List of tools and tackles to be supplied by the contractor for approval of specifications and make from JREDA. A list of requisite spares in case of Inverter comprising of a set of control logic cards, IGBT driver cards etc, Junction Boxes, Fuses, MCCBs etc. along with spare set of PV modules and batteries be indicated, which shall be supplied along with the equipment. A minimum set of spares shall be maintained in the plant itself for the entire period of warranty and Operation & Maintenance, which upon its use shall be replenished.

**17. Drawings & Manuals** 1 copy of Engineering, electrical drawings and installation and O&M manuals are to be supplied for different plant capacity.

**18. Quality and adaptability of the equipment:**

Bidders must verify the grid behavior, solar insolation levels, 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 by the bidders shall be evaluated for its quality and adaptability to the site conditions based on the purchasers past experience, projects earlier executed by the bidders and from other sources. Bidders must submit detailed technical operational parameters and latest plant performance indicators and status complete with the clients address and contact nos. with regard to projects of similar nature already executed.

**Bidders shall provide complete technical data sheets for each equipment giving details of the specifications along with make/makes in their bid along with basic design of the power plant.**

## **5.0 Five Years Comprehensive Maintenance Contract (CMC)**

### **1.0 The Comprehensive Maintenance Contract (CMC)**

**The total cost of Solar Photovoltaic Backup Power Systems includes the provision of 5 Years mandatory Comprehensive Maintenance Contract (CMC). To ensure long term sustainability of the solar Power systems the bidder should provide his representatives name, full address, mobile number and photographs to JREDA with one hard copy and soft copy as well as the names and contact details of all technicians should also be provided.**

- 1.1 The Comprehensive Maintenance Contract shall include servicing & replacement guarantee for parts and components (such as battery, electronics, Inverter and PV modules) of Solar Photovoltaic Backup Power Systems for five years from the date of installation. For PV modules, the replacement guarantee is for fifteen (15) years.
- 1.2 The maintenance service provided shall ensure proper functioning of the system as a whole. All preventive/routine maintenance and breakdown/corrective maintenance required for ensuring maximum uptime shall have to be provided by the Manufacturer. Accordingly, the Comprehensive Maintenance Contract (CMC) shall have two distinct components as described below.

### **2.0 Preventive/Routine Maintenance**

This shall be done by the company at least once in a 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, 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 Backup Power System as a whole. The maintenance record should be maintained properly and to be deposited time to time at JREDA office.

### **3.0 Breakdown/Corrective Maintenance**

- 3.1 Whenever a complaint is lodged by the user, the bidder shall attend to the same within a reasonable period of time (7 days) and in any case the breakdown shall be corrected within a period not exceeding ten days from the date of complaint.
- 3.2 .The date of CMC maintenance period shall begin on the date of actual commissioning of Solar Photovoltaic Backup Power systems.
- 3.3 If the system found damage / defective due to non maintenance, the cost for correcting the breakdown system will be deducted from bidder payment / security deposit.
- 3.4 The quality/level of service provided by the Manufacturer would form the basis for determining eligibility of the manufacturer to participate in the subsequent programs of JREDA.

## Location wise Plant Capacity

It is proposed to install Solar Photovoltaic Backup Power System-Mains-Battery Hybrid System at various locations in the core and buffer area of the Tiger Project, Daltonganj. Location wise Plant capacity is as listed below:

<b>Location</b>	<b>SPV Capacity (kWp)</b>	<b>Inverter Capacity (KVA)</b>	<b>Battery Bank Capacity</b>
Office of CF, Core Area & Field Director, Palamu Tiger Project, Daltonganj	8	12	120 V 600 AH
Office of CF, Buffer Area	3	5	48 V 300 AH
Betla Museum	6	10	120 V 400 AH
Betla National Park, Core Area	10	15	120 V 600 AH
Barwadih	2	3	48 V 300 AH
Chipadohar	2	3	48 V 300 AH
Garu	3	5	48 V 300 AH
Boresand	2	3	48 V 300 AH

**Information about Bidding Firm**

1. Name & address of Manufacturer with Telephone No., Fax & E-mail. :
2. Office Address :
3. Work Address :
4. Type of firm (Proprietorship/Partnership/Pvt. Ltd./Public Ltd. Co./Public Sector) :
5. ISO or equivalent certification (Attach IEC Certificate for module to be Supplied and for charge controller/PCU) : Attach proof
6. Details of manufacturing facilities : (Enclose list of infrastructure with photographs)
7. Manufacturer (SPV module/Electronics/Battery):
8. Details of in-house testing facility : (Give details)
9. Regd. Office/ Dealer/Service network in Jharkhand :
10. Annual Turnover for last two year :
11. Confirmation of meeting the eligibility Condition & qualifications :
12. Test Report of SPV module from MNRE approved test center with I-V Curve :
13. Date of Test Report & MNRE specification :
14. Engineering/ Electrical drawing of system and its installation details :
15. PAN Number :
16. GPS Co-ordinate & digital photographs: of registered office & factory campus showing board etc.
17. Any other information in support of this tender
18. Undertaking
  - a) We agree to manufacture and supply quality Solar Photovoltaic Backup Power System as per MNRE 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.

Date :

(Authorized Signature)

Name :

Designation :

Company Seal

**(Proforma –II)**

**Format for covering letter**

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

No.....

Date.....

To,

Director,  
Jharkhand Renewable Energy Development Agency  
Plot No. 328/B, Road No. 4, Ashok Nagar,  
Ranchi.

Sub:- Offer in response to EOI NO.JREDA/SPV/SPBPS/02/2010-11 for Manufacture, Supply, Installation, Commissioning and 5 years CMC of Solar Photovoltaic Backup Power System..... kW (..... Nos.)

Sir,

We are hereby submitting our offer in compliance with the terms and condition of EOI NO.JREDA/SPV/SPP/02/2010-11. As specified the offer has been submitted in two envelopes duly marked and sealed.

We further declare:

- a) That we are submitting this offer under the above mentioned EOI after having fully read and understood the nature of work and having carefully noted all the terms and condition laid down in the offer documents.
- b) That, we have never been debarred from executing similar type of work by any Central/State/Public Sector undertakings/Departments.
- c) That we shall execute the work offered as per the terms and conditions of the offer on award of work.
- d) That our offer shall remain valid for placement of order for a period of 90 days from the date of opening of the tender.

Authorized Signatory

Name :-  
Designation:  
Company Seal :

**(Proforma – III)**

**Authority Letter for Signing EOI Document & Attending Bid Opening Meeting**

**NIB No: JREDA/SPV/SPBPS/02/2010-11**

**Date :**

To,  
The Director  
Jharkhand Renewable Energy Development Agency (JREDA)  
Plot No. 328/B, Road No. 4, Ashok Nagar,  
Ranchi – 834002.

**Sub : Authority Letter for Signing EOI Document & Attending Bid Opening Meeting**

I hereby authorize ..... (Name & Designation)  
to sign the EOI Document and attend the Bid Opening Meeting to be held on ..... at JREDA on  
behalf of our company.

He is also authorized to provide clarifications/confirmations, if any, and such clarifications/ confirmations shall be  
binding on the company. The specimen signature of ..... is attested below.

.....  
(Specimen Signature)

.....  
(Signature of Authorized Signatory)

Name : .....

Name : .....

Designation : .....

Designation : .....

Company Seal :

Yours faithfully,

(Signature of Authorized Signatory)

Name :

Designation :

**Note :**

1. To be submitted by bidders on official letter head of the company.
2. Authorization can be for more than one persons

**(Proforma –IV)**

**Format for confirmation of Basic Eligibility Criteria**

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

No.....

Date.....

To,

Director,  
Jharkhand Renewable Energy Development Agency  
Plot No. 328/B, Road No. 4, Ashok Nagar,  
Ranchi.

Sub:- Confirmation of meeting the basic eligibility criteria  
EOI NO.JREDA/SPV/SPBPS/02/2010-11

Sir,

Having read understood and examined the tender documents; we hereby confirm the following towards minimum eligibility conditions to participate in the aforesaid tender.

- i) We are reputed manufacturer of Solar Photovoltaic Backup Power System and have adequate in-house testing facilities for testing of Solar Photovoltaic Backup Power System.
- ii) We possess adequate facility and network in the state of Jharkhand for providing after sale services.

Authorized Signatory

Name:

Designation:

Company Seal:

**Enclosures**

1. Copy of registration certificate indicating we are manufacture of Solar Photovoltaic Backup Power System.
2. List of testing facilities with their photographs

(Proforma –V)

### TECHNICAL DETAIL FORM

S.No.	ITEM	PARTICULARS
1.	SOLAR PHOTOVOLTAIC MODULES	
1.1	MANUFACTURER (Attach IEC Certificate)	
1.2	SIZE	
1.3	TESTING AND QUALIFYING STANDARDS (Attach Certificates)	
1.4	P nom.	
1.5	P max	
1.6	I mp	
1.7	V mp	
1.8	CELL EFFICIENCY	
1.9	No. of cells in a module	
1.10	Warranty offered (Attach Certificate)	
2	INVERTERS	
2.1	TYPE (Enclose IEC Certificate)	
2.2	AC Output Voltage	
2.3	DC input voltage range	
2.4	DC operating voltage	
2.5	Continuous rating	
2.6	Efficiency	
2.7	Operating temperature range	
2.8	Power control	
2.9	Protection features	
2.10	Overload capacity	
2.11	Total harmonic distortion	
2.12	Hardware platform	
2.13	DC input overload capacity	
2.14	Electronic metering accuracy	
3	Battery	
3.1	Type	
3.2	Manufacturers name	
3.3	Capacity Ah	
3.4	DOD %	
3.5	Rated normal voltage	
3.6	Rated maximum voltage	
3.7	Rated minimum voltage	
3.8	Applicable standard	
3.9	Ampere hour efficiency	

Signature of the Bidder \_\_\_\_\_

Business Address \_\_\_\_\_

**(Proforma-VI)****Schedule of requirements with specifications**

<b>Sl. No.</b>	<b>Brief Description</b>	<b>Units</b>	<b>Make</b>
1	SPV modules for a total capacity 1,2,3,6,8&10 kWp as per specifications.	1 Set	
2	SPV module mounting structure suitable for accommodating above Capacity SPV modules including foundation as per specifications on rooftop.	1 Set	
3	Inverters as per specifications	As per spec.	
4	Array Junction Boxes	1 Set	
5	Main Junction Boxes	1 Set	
6	DC Distribution units as per specifications	1 set	
7	AC Distribution units as per specifications	1 Set	
8	Cable requirement as per design	Meters As required at site for full plant commissioning	
9	Lightning arrester complete set as per specification	1 Set	
10	Earthing complete set as per specification	1 Set	
11	Battery bank complete as per specification	1 Set	
12	Fuses, Transfer switches, Printed Circuit boards required for power plant	1 Set	
13	Providing training to engineers and site staff for operating, Maintenance and trouble shooting skills		
14	Engineering, electrical drawings and installations and O&M manuals	1 Set	
15	Any other equipment required to complete the installation		
16	All the civil work related to grouting of the structure required for the plant	Lump sum	

**(Proforma –VII)**

**Price Bid Offer**

S.No.	Description	Price	
		In Figure	In Words
1.	Cost of 1, 2, 3, 6, 8 & 10 kWp System FOR including transportation/ Packaging/ installation / Commissioning inclusive of all taxes etc. with 5 Years Comprehensive Maintenance Contract (CMC)		
	<b>Total</b>		

(Proforma –VIII)

**COST BREAKUP FOR 1, 2, 3, 6, 8 & 10 KWP SOLAR PHOTOVOLTAIC BACKUP POWER SYSTEM**

<b>Sl. No.</b>	<b>Brief Description</b>	<b>Units</b>	<b>Qty</b>	<b>Rate (Rs.)</b>	<b>Amount (Rs.)</b>
1	SPV modules for a total capacity 1,2,3,6,8 kWp as per specifications.	1 Set			
2	SPV module mounting structure suitable for accommodating above Capacity SPV modules including foundation as per specifications on rooftop.	1 Set			
3	Inverters as per specifications	As per spec.			
4	Array Junction Boxes	1 Set			
5	Main Junction Boxes	1 Set			
6	DC Distribution units as per specifications	1 set			
7	AC Distribution units as per specifications	1 Set			
8	Cable requirement as per design	Meters As required at site for full plant commissioning			
9	Lightning arrester complete set as per specification	1 Set			
10	Earthing complete set as per specification	1 Set			
11	Battery bank complete as per specification	1 Set			
12	Fuses, Transfer switches, Printed Circuit boards required for power plant	1 Set			
13	Providing training to engineers and site staff for operating, Maintenance and trouble shooting skills				
14	Engineering, electrical drawings and installations and O&M manuals	5 Sets			
15	Any other equipment required to complete the installation				
16	All the civil work related to grouting of the structure required for the plant	Lump sum			

(Proforma – IX)

**Format for Submitting Bank Guarantee in Lieu of Earnest Money**

EOI No: JREDA/SPV/SPBPS/02/2010-11

Date:

(To be submitted on Rs. 50/- Non-Judicial Stamp Paper to be purchased in the name of the issuing bank)

To,  
The Director  
Jharkhand Renewable Energy Development Agency (JREDA)  
Plot No. 328/B, Road No. 4, Ashok Nagar,  
Ranchi – 834002.

WHEREAS ..... (Manufacturer’s name) (hereinafter referred to as “Manufacturer”), 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 Expression of Interest (EOI) No. .... dated ..... as per specification and terms and conditions enclosed therein.

WHEREAS the Manufacturer as per “Notice Inviting Expression of Interest, 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 Manufacturer.

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 Manufacturer/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 Manufacturer/Tenderer for the work under “Notice Inviting Expression of Interest Ref. No. : **JREDA/SPV/SPBPS/02/2010-11 dated 04.02.2011**”.
2. Your decision as to whether the Manufacturer/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 Manufacturer/Tenderer for the work under “Notice Inviting Expression of Interest Ref. No. : **JREDA/SPV/SPBPS/02/2010-11 dated 04.02.2011** 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 upto ..... (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 Manufacturer/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 .....

.....

**(Proforma – X)**

**PROFORMA FOR BANK GUARANTEE TOWARDS PERFORMANCE GUARANTEE**  
**(SECURITY DEPOSIT)**

(To be executed on non-judicial stamp paper of appropriate value)

Name of the Bank.....Bank Limited  
Address.....Guarantee No.....  
A/c Messrs.....  
Date of Expiry.....limit to liability Rs.....  
Contract No.....  
For (Name of Work).....

Subject : **Security Deposit**

Date.....2010

**GUARANTEE BOND**

1. In consideration of the JHARKHAND RENEWABLE ENERGY DEVELOPMENT AGENCY (JREDA) (hereinafter called the Company) having agreed to exempt \_\_\_\_\_ (hereinafter called the said contractor(s) from the demand under the terms and conditions of an Agreement dated \_\_\_\_\_ made between \_\_\_\_\_ and \_\_\_\_\_ for \_\_\_\_\_ (hereinafter called the said Agreement) of security deposit for the due fulfillment by the said contractor(s) of the terms and conditions contained in the said Agreement, on production of a bank guarantee for Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) we \_\_\_\_\_ (indicate Name of the Bank) (hereinafter referred to as the Bank) at the request of \_\_\_\_\_ (Contractor(s)) do hereby undertake to pay to JREDA an amount not exceeding Rs. \_\_\_\_\_ against any loss or damage caused to or suffered or would be caused to or suffered by the Company by reason of any breach by the said contractor(s) of any of the terms or conditions contained in the said Agreements.
2. We \_\_\_\_\_ (indicate the name of the Bank) do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from JREDA stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by JREDA by reason of breach by the said contractor(s) of any of the terms or conditions contained in the said Agreement or by reason of the contractor(s) failure to perform the said Agreement. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs \_\_\_\_\_.
3. We undertake to pay JREDA any money so demanded notwithstanding any dispute or disputes raised by the contractor(s)/supplier(s) in any suit or proceeding pending before any court or Tribunal or arbitration relating thereto our liability under these presents being absolute and unequivocal.  
  
The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s)/supplier(s) shall have no claim against us for making such payment.

4. We, \_\_\_\_\_ (indicate the name of the bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of JREDA under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till JREDA \_\_\_\_\_ certified that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the \_\_\_\_\_ (date) we shall be discharged from all liability under this guarantee thereafter.
5. We, \_\_\_\_\_ (indicate the name of the Bank) further agree that JREDA shall have the fullest liberty without or consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Company against the said Contractor(s) and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor(s) or for any forbearance, act or omission on the part of JREDA or any indulgences by JREDA to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.
6. This guarantee will not be discharged due to the change in the constitution of the bank or the Contractor(s)/supplier(s).
7. We, \_\_\_\_\_ (the name of the Bank) further undertake to extend the validity of this guarantee beyond the period stated in hereinabove or as extended from time to time, for such further period as may be required by JREDA in writing before the expiry of this guarantee and upon such extension(s), all terms and conditions of this guarantee shall remain in full force till the expiry of the extended period(s).
8. We, \_\_\_\_\_ (indicate the name of bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of JREDA in writing.
9. We have power to issue this guarantee under our Memorandum and Articles of Association and the undersigned has full powers to sign this guarantee on our behalf under power of Attorney dated ..... granted to his and/or the resolution dated ..... passed by our Company of Directors in accordance with our constitution.

Dated the.....day of..... 2011

For (indicate the name of Bank).

Signature \_\_\_\_\_

Name \_\_\_\_\_

Designation \_\_\_\_\_

Authorisation No \_\_\_\_\_

In presence of

1. \_\_\_\_\_

2. \_\_\_\_\_

**Note:** Validity of BGs shall be 5 years from the date of receipt of last material at site

Date & Place \_\_\_\_\_

Bankers' Seal

## **Check list**

### **(Documents to be enclosed)**

- 1.0 Envelope-I: Containing Part-I of the offer document.
- i) Photocopy of the receipt issued by JREDA for the purchase of the offer (EOI) documents or Demand Draft (non-refundable) for Rs.10,000/- (Ten Thousand Only) in favour of Director, JREDA, Ranchi on any Nationalized/Scheduled bank of India for those who have downloaded the offer document from JREDA web site.
  - ii) Earnest money of appropriate amount in the form of Demand Draft/Bank Guarantee in favour of Director, JREDA, Ranchi on any Nationalized/Scheduled bank of India.
  - iii) Original copy of bid document amendments/revisions to bid documents issued by JREDA, if any duly signed by authorized signatory with company seal on each page & proforma-I, II, III, IV, V & VI.
  - iv) Registration certificate clearly indicating that they are manufacturer of PV module or Battery or Electronics as applicable.
  - v) List of in-house testing facilities along with their photographs.
  - vi) Photo copy of the work order for system 1-10 KW.
  - vii) Attested photocopy of the certificate issued by the concerned Nodal Agency/Govt. Organisation indicating successful installation and commissioning of Solar Photovoltaic Backup Power System mentioned above.
  - viii) Photocopy of Partnership deed in case of partnership firm.
  - ix) Power of attorney for authorized signatory in case of companies.
  - x) Financial capability certificate from Bank/Financial Institution indicating that the manufacturer has necessary resources for the execution of the order.
  - xi) Photocopies of audited balance sheet & P&L Account for last 2 years.
  - xii) Letter in confirmation of meeting the eligibility condition and qualifications.
  - xiii) GPS Co-ordinates (Longitude, Latitude) & digital photograph of registered office and factory campus showing their board.
  - xiv) Duly filled technical specification of Solar Photovoltaic Backup Power System.
  - xv) Tentative overall supply schedule.
- 2.0 Envelope –II: Containing part-II of the offer document  
Price schedule (Proforma-VII & VIII) duly filled both in figures and words. Each page to be duly signed by authorized signatory with seal of the firm
- 2.1 Envelope –III: Containing duly sealed envelope I & II with forwarding letter. The envelope-III should be duly super scribed with EOI No. and due date.