



**BID SPECIFICATION
FOR
SOLAR POWER PACK
&
SOLAR HIGH MAST**



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VOLUME-I



**BID SPECIFICATION
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1.0 INTRODUCTION

- 1.1 The instruction/information contained in the Bid documents are for guidance and compliance of the intending Bidder. Bidder is advised to obtain, in writing, clarifications from the 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 preparation and submission of the Bid, journeys undertaken by them, and subsequent Bidding process till award of the order to successful Bidder and the JREDA shall, in no case, be responsible or liable for those costs, regardless of the conduct or outcome of the Bidding process.

2.0 BID DOCUMENTS

- 2.1 Bid documents shall comprise of various Proforma and Tables as specified in Volume I and II.. In addition, any other document / instruction / amendments / revisions issued by the JREDA to the Bidder during pre-bid Conference or later till due date of submission of the offers, shall also be deemed to be integral part of the order. Failure to furnish all the information required by the bidding document in every respect will be at bidder risk

3.0 COST OF BID

- 3.1 Non-refundable cost of Bid document shall be submitted by the Bidder during purchasing of bid document, in form of a Demand Draft/pay order/ Banker's cheque from any Indian Nationalised Bank, drawn in favour of Jharkhand Renewable Energy Development Agency, Payable at Ranchi

4.0 Scope of Work

The scope of work for Solar Power Pack, Hybrid System includes design, manufacture, testing, commissioning, packing & forwarding, transportation, transit insurance supply, installation & commissioning of the system complete in all respects along with one set of user's tools & tackles kit and operation instruction manual (Hindi & English both) and maintenance manual and delivery on FOR destination/site (door deliver) basis including, demonstration of performance at Sadar Hospital, Daltonganj, Palamau.

5.0 Technical Specification

The general technical specifications of the Solar Power Pack are enclosed at Volume-II. The technical specifications of the Solar Power Pack offered by the bidder should conform to the specifications fixed by the Ministry of Non-Conventional Energy Sources for the year 2003-04 or 2004-2005. The Test Reports issued by the SEC/ OATCs for the year 2003-04 or 2004-05 for the Solar Power Pack of the bidder should correspond to the specifications for 2003-2004 or 2004-05 of MNES.

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The bidder shall submit a "Compliance Certificate for meeting Technical Specifications" along with the Technical & Commercial Part : Part-II as per Proforma – III for qualification conditions. The bidder may submit the technical specifications of their Solar Power Pack offered to be supplied.

6.0 Test Certificate

It is mandatory for the bidders to have test certificate issued by the Solar Energy Centre (SEC), Gwalpahari – Gurgaon, Haryana; or Electronics Regional Test Laboratory (East) (ERTL) Bidhan Nagar, Kolkata; or Central Power Research Institute (CPRI), Thiruvananthapuram; or Electronics Test & Development Centre, Bangalore that Solar Power Pack conform to specification of MNES, Govt of India for the year 2003-2004 or 2004-05. Test Certificates issued for 2003-2004 or 2004-05 would be considered valid for placement of orders during 2006-07. The reports conforming to specifications pertaining to other years are not valid. Bid received without test certificate with Technical & Commercial Part: Part –II will be rejected outright and no correspondence will be entertained in this regard.

7.0 Quantity of Supply


The requirement given in the Bill of Quantity indicated below is tentative and is subject to increase or decrease depending upon the actual requirement at the time of placing order/resource available.

Bill of Quantities

Sl. No.	Description	Total Quantity (Nos.)
1.	Solar Power Pack (2 KWp) Hybrid System	01
2	Solar High Mast	04

8.0 Minimum Eligibility and Qualifications Criteria

- 8.1 The bidders should be a reputed supplier of Solar Power Pack as well as should also be engaged in the manufacture of one or more major sub-systems (viz. PV modules or Battery or Electronics) of SPV systems. Solar Power Pack supplied by the bidder shall be working satisfactorily for minimum period of one year as on submission of bid.

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- 8.2 Manufacturer should have valid Test Certificates issued by Solar Energy Centre/Other Authorised Test Centres, that is, either from Solar Energy Centre (SEC), Gwalpahari, Gurgaon; or Electronics Regional Test Laboratory (East) (ERTL), Kolkata; or Central Power Research Institute (CPRI), Thiruvananthpuram; or Electronics Test & Development Centre (ETDC), Bangalore tested during the year 2004-05/2005-06 for the specific model of Solar Power Pack being quoted.
- 8.3 All test reports issued by SEC / OATCs for Solar Power Pack conforming to the MNES 2003-2004 or 2004-05 specifications would be considered valid for placement of orders under the **2006-07** programme.
- 8.4 Bid(s) of bidders who do not submit valid test reports for the system in terms of stipulations of as given above shall be rejected as being non-responsive.
- 8.5 Satisfactory installed Power Pack in any Nodal Agency.
- 8.6 The bidder shall submit a letter in confirmation of meeting the Minimum Eligibility Conditions and qualification conditions as per Proforma – II given in the bid document.
- 9.0 Submission of Bid**
- 9.1 The Bid shall be prepared and submit by typing or printing in English with indelible black ink on white paper in consecutively numbered pages, each page signed alongwith duly filled in format (s) as per bid document. The bidding document shall comprise the documents as stated in the bid and to specify/confirm the same in the check-list enclose in the bid document.
- 9.2 All original and amendments / revisions to Bid Documents, including minutes of, issued by the JREDA, if any, shall be signed and submitted along with the Bid. The Bid submitted by the Bidder shall take into account all such amendments / revisions and minutes of meeting, if any.
- 9.3 Bidders are advised to submit their Bids strictly based on the specification, terms and conditions contained in the Bid documents and subsequent revisions / amendments, if any. The same shall be considered as integral part of the Bid.
- 9.4 Bidder shall submit their offer at the office of Director, JREDA at Plot No. 328/B, Road No.-4, Ashok Nager, Ranchi, Jharkhand.



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10.0 Mode of Submission

10.1 Sealed bid should be submitted in three separate parts, Part-I Part-II and Part-III. Each envelope should be super-scribed on top left side indicating clearly bid notice no., SPV System nomenclature/type & model, due date of opening as may be, details of EMD, name & address of the bidder, etc. as required. These envelopes should again be sealed in a covering envelope, alongwith forwarding letter, super-scribed on top with "Offer for supply of SPV system – Solar Power Pack", NIT No. Part-I, Part-II, Price Part (Part-III), Bid Paper Purchase Receipt No., Date of opening of Part – I & II Name & address of bidder, etc. Details of Part-I, II & III given below:

- a) Part-I - Earnest Money: To submit original only.
- b) Part-II - Technical & Commercial: To submit original plus two Copies & One soft in the form of compact Disk (CD).
- c) Part-III - Price: To submit original plus 1 (one) copy

Bid shall be submitted under a covering letter indicating clearly the summary of Bid Chapters with Proforma and subsequent revisions / amendments, if any, schedules of the complete Bid.

10.1.2 Part-I- EARNEST MONEY

This cover should be sealed and super-scribed “PART – I; Earnest Money,” Only one original with a covering letter shall be submitted. as per clause no.11 below shall be enclosed. For Bidders not submitting earnest money request for concession with documentary evidence shall be submitted, failing which the Bid shall be liable for outright rejection.

10.1.3 Part-II- TECHNICAL & COMMERCIAL

This cover should be sealed and super-scribed “PART – II; TECHNICAL AND COMMERCIAL BID” followed by the title of work and Enquiry reference.

‘Technical’ and ‘Commercial’ Part of the offer shall be submitted in original plus three copies each copy shall contain 1 (one) set of the following:

- a) General terms and Conditions of Contract, Proforma, Price Schedule, Technical specification and any additional instruction or documents issued shall be duly signed and stamped on each page as a token of having been read, understood and accepted all the terms and conditions mentioned therein. A CD shall be submitted for this part.

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b) The following documents shall also be submitted with Part-II:

i.	Forwarding letter :	: Proforma – I
ii.	Minimum Eligibility Condition – qualification	: Proforma – II
iii.	Compliance Certificate for meeting Technical Specifications – eligibility and qualification	: Proforma – III
iv.	Certified copies of 2004 – 05 Sales Tax Clearance Certificate and Sales Tax Registration Certificate	
v.	Attested Photo-copy of Partnership Deed in case of partnership firm with the photograph. & details of each partner.	
vi	Power of Attorney for authorised signatory in case of companies.	
vii.	Financial capability certificate from Bank/Financial Institution indicating that the manufacturer has the necessary resources for execution of the order.	
viii	Proof of annual turnover for past 3 years for SPV systems including details of manufacturing capacity / facility along with testing facilities and list of items / products manufactured in house and bought-out items.	
ix	Details of past experience against supply made to different States/Nodal Agencies/JREDA	: Proforma-VI
x	Photocopies of certificate of satisfactory performance of systems supplied to state Nodal agencies along with copies of purchase orders / contracts.	
xi.	Test Certificate of Solar Power Pack issued by Solar Energy Centre/MNES approved testing centres (OATCs) for the test performed during 2003-2004 or 2004-05 as per MNES, Govt. of India specifications.	
xii.	Technical Specifications of Solar Power Pack of Bidder Volume - II	
Xiii	Photocopy of bank draft submitted as cost of bid document.	
Xiv	PF Registration Certificate & PF Registration No.	
Xv	A tentative overall schedule in the form of Bar Chart	
Xvi	A copy of Price Schedule (without prices) duly signed & stamped, as per proforma – VII mentioning “Quoted” word in the column of UNIT rate and Total rate for which price is quoted and mentioning “not quoted” for which price is not quoted.	
Xvii	Declaration that they have never be de-listed or banned at any time in the past by any Govt. of Public Sector undertaking.	
Xviii	No Deviation Confirmation as per Proforma IX	
Xix	Bidder shall submit complete bidding document including subsequent amendment, modification and revision, duly signed and stamped as a token of having read, understood and accepted all the terms and condition mentioned therein.	



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- c) **Please note that this is a zero deviation tender. 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 not seek confirmations/ clarifications and any offer(s) not in line with BID conditions shall be liable for rejection. Bidders are also requested to submit the documents/ confirmations strictly as per the check list enclosed above.**

10.1.4 Part-III – PRICE

This cover should be sealed and superscripted “PART-III-PRICE BID” to be filled up exactly as per Format given in proforma-VII. This shall be filled up in both figures and words and signed on each page with stamp by Authorised representative of the Bidder. 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 amounts, the Individual rates shall be taken as final and the total amount shall be adjusted accordingly. Price Offer should not contain any technical or commercial offer, likewise, technical or commercial offer should not contain price of any item, such cases, even if found anywhere, shall not be given cognizance of.

- 10.2 JREDA shall assume no responsibility for misplacement or pre-mature opening of any part of the bid, in case above instructions are not complied with by the bidder.
- 10.3 Any offer received after the deadline for submission of offers as specified above, shall be rejected and returned unopened to the bidder.
- 10.4 All the pages of bid documents, technical specifications, bids, supporting documents, etc. shall be duly signed by the authorised signatory and company seal should be affixed on each page. Any part of the bid which is not specifically signed by the authorised signatory and not affixed with company seal shall not be considered for the purpose of evaluation.
- 10.5 The offer should be signed and sealed by the bidder or his authorised representative. The names and designations of all persons signing shall be typed or printed below the signature.
- 10.6 The offer shall contain no erasures or overwriting except as necessary to correct errors made by bidder. Such corrections, if any, shall be initialed by the person signing the offer.
- 10.7 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..



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11.0 Earnest Money Deposit

- 11.1.1 Bidder shall submit non-interest bearing Earnest Money of Rs. 30,000/- (Thirty Thousand) for in the form of Demand Draft from any Indian Nationalised Bank, drawn in favour of “Jharkhand Renewable Energy Development Agency (JREDA)”, payable at RANCHI.
- 11.1.2 Earnest Money submitted in a separate sealed envelope (PART-I) duly superscripted with the Bid Enquiry reference, Bidder’s own names full address and titled “Earnest Money”.
- 11.1.3 The Earnest Money shall be returned to all the unsuccessful Bidders, within sixty days from the date of placement of LOI/Order to successful bidder.
- 11.1.4 In the event the Bid of any party is rejected during the course of Techno-Commercial Scrutiny and Evaluation, the Earnest Money will be returned to such Bidder.
- 11.1.5 Earnest Money shall be forfeited / en-cashed 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 or fails to submit the Security Deposit within specified time as per terms of the LOI/Order.

12.0 Validity of Offer

The Bid and Price(s) quoted shall remain valid up to 31.03.2007.

13.0 Opening and Evaluation of Offers

- 13.1 Part-I & Part-II: EMD and Commercial & Technical Part will be opened on Dt. 03.08.2006 at 4.00 PM at the office of Director, JREDA at Plot No. – 328/B, Road No. -4, Ashok Nagar, Ranchi in the presence of bidders, or their authorised representative, who choose to attend the meeting. The representative should produce authorization letter to attend the bid opening meeting as given at Proforma-IV. The representative who does not produce such authorization will not be allowed to attend the bid opening.
- 13.2 JREDA, if required, may at its discretion obtain clarifications on offers by requesting such clarifications from any or all the bidders. Such request for clarification and the response shall be in writing.
- 13.3 JREDA shall examine whether bid is complete in all respect and conform to stipulated requirement of Technical specifications and Tests reports. The bid having material deviation shall be rejected as being non-responsive.
- 13.4 The Part – III: Price Part of each lot of only those bidders, whose offers are technically and commercially acceptable after evaluation of the Technical and Commercial Part, will be opened and evaluated. The date & time for opening of Part-III: Price Part will be

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notified separately. The Price Part will be opened at the office of Director, JREDA at Plot No. –328/B, Road No. -4, Ashok Nagar, Ranchi as intimated, in the presence of eligible bidders or their authorised representative. The authorised representative will be allowed to attend the opening on production of authorization letter.

- 13.5 JREDA, if required, may at its discretion extend the scheduled date of opening of Price Part of bid.

14.0 CONTRACT PRICE

- 14.1 The total Contract price of Solar Power Pack and Solar High Mast shall be including Solar PV array, battery bank, charge controller and electronics, inverter, junction box & its housing, solar module mounting structure & its foundation, AC distribution panel board, cables & wiring, compact fluorescent lamps & fittings, fans, lighting & over voltage protection system, earthing system, tool kits etc. Price should be quoted in Proforma -VII (Price Part). The Contract price also included charges of installation and commissioning.
- 14.2 For Supply of items in full & good condition at FOR Site / Stores site (door delivery basis) to Sadar Hospital, Daltonganj, Palamau, including transit insurance. .Contract Price also includes all charges towards packing & forwarding, inspection Insurance and freight including door delivery charges. Contract Price is also inclusive of Excise Duty ,CST and Sales Tax / Jharkhand VAT on the finished items, Turn Over Tax (TOT) / Octroi, Professional tax, entry tax etc. as applicable for the his supplies.
- 14.3 Contract Price shall remain firm and binding and shall not be subject to any variation, whatsoever, on any account except for statutory variation on taxes & duties during contractual completion period as stipulated in Clause no 14.4 below and or addition or modification of scope of work.
- 14.4 Various taxes, levies and duties shall be paid against applicable documentary evidence limited to the maximum ceiling as indicated in the price schedule
- 14.5 The Contract price includes and covers the cost of all royalty and fees for all articles and processes, protected by letters, patent or otherwise incorporated in or used in connection with the work, also all royalties, rents and other payments in connection with obtaining all the materials for the work and the supplier shall indemnify and keep indemnified the JREDA, which indemnity, the supplier hereby gives against all actions, proceedings, claims, damages, costs and expenses arising from the incorporation in or use of work of any such articles, processes or supplies.
- 14.6 All applicable charges for taking statutory clearances, wherever necessary, is included in the contract price. The price shall also be inclusive of necessary charges towards supervision as applicable.



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15.0 Terms of Payment

- a) 70% of the contract price shall be paid against delivery of goods in full and good condition or submission of following documents :-
 - i) Commercial invoice in triplicate.
 - ii) Copy of receipted delivery challan/ transporting challan/ lorry receipt.
- b) 25% of the contract price shall be paid against successful installation & commissioning of Solar Power Pack & Solar High Mast on submission of the following certificates :-
 - i) Commercial invoice in triplicate.
 - ii) Copy of testing certificate & commissioning certificate issued from Sadar Hospital, Daltonganj, Palamau.
- c) Balance 5% shall be paid after completion of warranty period (2 years).

16.0 INCOME TAX

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

17.0 VARIATION IN TAXES AND DUTIES

- 17.1 The adjustment in the Contract Price towards imposition of new taxes or abrogation of existing taxes shall be applicable only if the new tax is enacted or existing tax is abrogated within Contractual delivery/execution period. For any variation due to enactment of new tax or abrogation of existing tax after Contractual delivery / execution period, adjustment in the Contract Price shall not apply.
- 17.2 The Supplier shall bear and pay all liabilities in respect of statutory variations in taxes and duties and imposition of new taxes and duties that may be imposed after the Contractual delivery / execution dates, as originally stipulated, in case the delivery dates are extended due to reasons attributable to Supplier.
- 17.3 The adjustment in the Contract Price towards variation in the taxes shall be made by the JREDA on production of the documentary evidences by the Supplier and after completion of delivery.
- 17.4 The Contract Price shall be adjusted towards variations in taxes in respect of only finished equipment supplied by the Supplier to the JREDA. No adjustment in the Contract price shall be made for variations in the taxes on raw-materials, parts, component / intermediate components, assemblies / sub-assemblies, etc.
- 17.5 For the purpose of adjustment in the Contract Price towards variation in taxes, the Contract Price shall be the price including price adjustment due to variation in price indices, if applicable for this package.

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18.0 TRANSIT INSURANCE

Transit Insurance shall be arranged by the supplier for his total supplies.

In case of any damage / loss / pilferage / non-delivery during transit, the supplier shall lodge the claim and settle the claim with the insurance agency. The supplier shall also arrange replacement of the damaged, lost/pilfered items expeditiously pending settlement of commercial implications with insurance agency, if any, so as not to hamper the erection and commissioning work of the entire plant.

The resultant loss if any due to failure of supplier / sub- supplier to comply with the above shall be to the account of supplier.

19.0 DESPATCH INSTRUCTIONS


- 19.1 All the items/equipments shall be subjected to inspection by JREDA or authorised representative as per relative standard/provision approved by JREDA before dispatch of items
- 19.2 The equipment shall be despatched as per the detailed "Despatch Instructions" which will be required to be followed strictly at the time of despatch. However, equipment shall be despatched only after receipt of "Despatch Clearance" from JREDA after inspection and acceptance of the equipment is over. No consignment shall be despatched without receipt of despatch clearance from JREDA.

20.0 LIQUIDATED DAMAGES FOR DELAY IN COMPLETION

- 20.1 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 and/or to fulfill his obligations in time under the Contract, he shall be liable to pay to the JREDA as agreed liquidated damages a sum equipment to ½% of total contract value per week of such delay or part thereof subject to maximum of 5% of the total contract value.
- 20.2 The liquidated damages for delayed completion shall be recovered from the Supplier's bill or Security Deposit.

21.0 Delivery

The delivery of goods in full and completion of installation/commissioning including awareness programme in terms of the contract/order shall be completed within 3 (three) months from the date of the order.

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22.0 Inspection of the Factory and Tests

- 22.1 JREDA reserves the right to inspect the manufacturer's works/factory to ascertain the capability/availability of necessary equipment & infrastructure required for manufacture of the item offered before opening of the price offers of the bidders.
- 22.2 JREDA shall have the right to inspect and test the goods to confirm their conformity to the technical specifications after delivery of goods to consignee.

23.0 Cancellation of Bid / Order

The JREDA reserves the right to reject in part or full the awarded contract without assigning any reason of those firms which will be found defaulter for delayed supply or failure to deliver satisfactory performance or supply of substandard materials pursuant to clause 20.0 and 22.0.

The authority reserves the right to reject part or whole of the bid order without assigning any reason thereof.

24.0 Warranty Period

The manufacturer must provide warranty for a minimum period of two years for the Solar Power Pack including the battery and minimum ten years for PV modules from the date of installation/demonstration of systems after receipt of the materials by the consignee. Supplier shall without prejudice to any other clauses of the order repair/replace the defective parts and restore the system to satisfactory working/performance within 7 days without any additional cost to JREDA

25.0 Training Programme, After-Sales Service and Availability of Spares

- 25.1 The responsibility of organizing training programme for Solar Power Pack will rest on the manufacturers. The training programme will be organized in consultation with JREDA/Consignee and Manufacturer of Solar Power Pack. The training programme will focus on operation and maintenance of Solar Power Pack. Printed leaflet/literature should be made available in Hindi & English by the manufacturer regarding the operation and maintenance of their Solar Power Pack. The manufacturer will also ensure after sales service and availability of spares parts to ensure immediate replacement and repair of defective part of the system.
- 25.2 The supplier shall within 7 days from the date of the order depute authorised service engineer and establish sufficient inventory of spares in the state in consultation with JREDA to provide satisfactory and uninterrupted services during warranty period.

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26.0 Performance Guarantee (Security) Deposit

The successful tenderer shall submit performance guarantee within 15 days from the date of Letter of award in the form of Demand Draft from any Nationalised/scheduled Bank in favour of JREDA for a sum equivalent of 5% (Five Percent) after adjusting the value of EMD Demand Draft. The Performance Security shall be liable for forfeiture by JREDA in case of termination/ cancellation of the order/contract pursuant to Clause 23.0 or failure of the equipment to deliver satisfactory and acceptable performance.

27.0 Award of Contract/Order

The contract/order shall be awarded to techno-commercially acceptable and lowest evaluated bidder for the quantity quoted by the bidder

28.0 Agreement / Contract

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

29.0 Arbitration

All disputes shall be settled by reference to arbitration as per the Arbitration and Conciliation Act 1996 and Rules of the Arbitration of the Indian council of Arbitration.

30.0 Assignment

The supplier shall not assign, in whole or part, its obligations to perform under the order/contract, without written permission of the JREDA.

31.0 Force Majeure

- 31.1 Notwithstanding the provisions of Clauses 20.0 and 26.0, the Supplier shall not be liable for forfeiture of its performance security, liquidated damages, or termination/ cancellation of order/contract if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.
- 31.2 For purposes of this clause, “Force Majeure” means an event beyond the control of the Supplier and not involving the Supplier’s fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of the JREDA in its sovereign capacity, wars or revolutions, strikes and riots, fires, floods, epidemics, quarantine restrictions, and freight embargoes.

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- 31.3 If a Force Majeure situation arises, the Supplier shall promptly notify the JREDA in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.



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VOLUME-II

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TECHNICAL SPECIFICATION

1.0 Executive Summary

The hospital is located in Palamau district head quarters and is connected to the local Jharkhand State Electricity Boards (JSEB) grid for supply of power. The quality of the grid power is un-reliable with frequent power outages and tripping. Tripping and outages are more prevalent in the evenings due to poor regulation and excessive loads that are beyond the end user control. There is an urgent need to provide an effective internal power management system that will provide clean regulated and un-interrupted power to the pre-identified critical loads.

1.1 Objectives

- Provide reliable, clean, regulated, un-interrupted power on demand to the pre-identified critical loads in the hospital, improving the over all service in the hospital.
- System should be self re-generating, provide backup power for 4 hours on an average day.
- System to provide low life cycle cost and maximise savings to the institution.
- System would be an operating model for further replication in other hospitals and application.

1.2 Proposed Design Philosophy

JREDA proposes Solar – Mains Hybrid power system that would use a suitably designed solar arrays, power conditioner and battery bank. In order to achieve the project objective, some field-tested concepts have been incorporated into the project.

- Integrated control system to co-ordinate and optimise interaction between the solar array, battery bank, grid power and site load.
- Solar array will have the highest order of merit, all solar power generated will be prioritised and consumed.
- High Efficiency Power conditioner to maintain highest system efficiency.
- Battery will be maintained at a minimum 50% SOC at all times. It would be our endeavour to maintain the battery at float state for as long as feasible.
- Automated scheduling of the system to avoid complete station “Black out”.
- Battery bank would act as a “Spinning Reserve“, with a design life of 7+ Years.
- Data logging and remote monitoring for system performance monitoring.



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- Use energy efficient lamp with electronics ballast of 28 /14 W capacity in place of 40W Tube Lamps with conventional choke, which consumes 80W. This will provide substantial power saving.
- Provide energy efficient lighting to ensure sufficient illumination in diagnostic area, driveways, corridors and in / outpatient wards by using energy efficient luminaries.
- Proposed system will exclude loads such as water pumps, air conditioners and other connected dynamic high capacity loads.

JREDA would need Solar-Mains–Battery based hybrid system with a margin of 40% in capacity for future load growth. Solar and battery units are modular and can be added without any major modification to the system. The recommended back up power system for the hospital shall be configured with:

- Solar Array of minimum 1500Wp rating.
- Suitable frames to mount the solar array with the required tilt.
- Flooded tubular battery bank of 120V / 200Ah.
- Hybrid Power Conditioner of 5kVA continuous rating
- Required energy efficient lighting.
- The system shall carry an over all warranty of 2 years.

2.0 DESIGN CONSIDERATION

2.1

Description	Qty	Load (W)	Connected Load (W)	Av. Outage Hours	Total Eergy / day (kWhrs)
E+ Energy Efficient Lights - 4 Feet	48	28.00	1344.00	4.00	5376.00
E+ Energy Efficient Lights - 2 Feet	18	14.00	252.00	4.00	1008.00
E+ Energy Efficient (Yard Light)	6	56.00	336.00	4.00	1344.00
Vaccine Storage Equipments	1	300.00	300.00	4.00	1200.00
Other Medical Equipments	1	300.00	300.00	4.00	1200.00
Other Misc Loads	1	100.00	100.00	4.00	400.00



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2.2 Load Calculation

The total connected load in the system is 2.6kW, the total energy requirement during the outage hours is estimated at 10528kWhrs. A solar PV array of 1500W will produce a daily average power of 1500×4.5 effective sunshine hours = 6750Whrs. Contribution of Renewable Energy in the total energy will be 64%. Balance load of shall be supplemented from the main supplies, when available. The battery bank of 200AH capacity would be able to cater to the break down period not exceeding 4 hours at a given time.

2.3 Operational Philosophy

The system shall supply electricity from Grid and Solar Panels (renewable source). Energy storage in the form of a battery bank provides a buffer and control flexibility to allow optimum use of the renewable energy source without jeopardising the robustness and quality of power delivered to the customer. The way in which this is achieved is described below.

The system controller shall monitor and measures how much energy is being produced by the solar array, it has the ability to turn the PV array off if required. The controllability of the PV is provided to ensure that in the event of large available solar power (highly unlikely in this system) and very low system loads it will be possible to reduce the output from the PV array in small increments.

Energy storage system shall consist of a bi-directional inverter that can charge or discharge a battery bank. Battery bank shall run the system for about 4 Hrs at a load specified load. This capacity the system can cover for the sudden loss of PV in the system. The battery bank also allows excess solar energy to be stored and used later on when required. In effect the battery bank provides system flexibility and supply robustness so that grid can be varied continuously or turned off as the solar input varies without jeopardising the supply of electricity.

High load, minimal solar

In this mode the grid primarily supplies the system energy. Operation is optimised to make best use of the battery bank.

High load, high solar

In this situation the solar behaves in effect as a negative load. The power system will see a reduced demand but the demand will still be large enough to require the operation of the grid.



BID SPECIFICATION FOR SOLAR POWER PACK & SOLAR HIGH MAST



Low load, high solar

When significant amount of solar energy is available and the load is close to that which can be supported by the PV array it shall be possible to internally turn off the grid completely. The inverter and battery bank shall cover for any mismatch between the PV array and the system load. If the battery bank starts to run low, depending on the availability the grid will automatically cut-in. Thus the battery bank shall be able to supply power to the system via the inverter to cover the load in the event of a reduction in PV array output due to a reduction in solar insolation. This allows the system to ride through temporary reductions in the solar output without drawing on the grid.

Low load, low solar

In the event that the system load is significantly below the inverter rating it shall be possible to run the system just from the inverter. As the load increases and the battery runs down grid power needs to be drawn.

As can be seen from these different modes, the system shall be very flexible in covering for different situations of varying load and solar output. At all times the system is maximising the usage of the solar energy and optimising the selection of other sources for robustness of supply.

3.0 Photovoltaic Array

The solar array shall have a total installed capacity of 1500Wp. The array shall be made of basic block of 750Wp – 10 modules of 75W connected in series. The total nominal DC input voltage shall be 120 VDC. Redundancy has been built into the system, with multiple arrays connected in parallel to the inverter. Solar array shall be mounted on cold rolled galvanised steel frames onto which the solar modules would be secured with nuts and bolts. The array structures would be mounted on concrete footings either on ground or on the roof – depending on shadow free space availability. Each sub-array steel structure supports 10 framed PV modules. Each string is equipped with a string disconnect for ease of servicing and the entire solar array is terminated into the Power conditioner through a DC breaker located in the DC junction box.

4.0 Hybrid Power Conditioner

The multi-function power conditioning system combining the functionality of a grid-interactive solar inverter with a true on-line single conversion UPS. The SMD shall allow for the first time, the option of combining renewable energy sources with the functionality of a commercial UPS system.



BID SPECIFICATION **FOR** **SOLAR POWER PACK** **&** **SOLAR HIGH MAST**



TECHNICAL SPECIFICATION

Principal features and benefits

The principal features of the SMD system shall include the following:

- Conditioning of voltage supplied to the load using a highly efficient true on-line single conversion topology
- “No-break” transfers to battery and renewable energy power in the event of grid failure
- Minimisation of harmonics on JSEB grid – SMD can improve the quality of the utility grid.
- Integrated data, event, and fault logging.
- Remote access via a telephone to all monitoring and control functions.
- Integrated PWM solar charge regulator.

Standard Operation - Grid Interactive Mode: Under normal circumstances, the grid powers the load with the power conditioner minimising voltage sags, swells, spikes and noise. The SMD charges the battery, ensuring it will be available in the event of grid failure.

Inverter Mode: In the event of failure or extreme fluctuations in the grid, the SMD transfers the load to battery power. When the grid is available again, system transfers back to the grid and recharges the batteries.

System Specifications

OPERATING PARAMETER	INFORMATION
Output Voltage	<ul style="list-style-type: none"> ▪ 230 V Nominal ▪ Inverter to follow grid to +10% -15% of the nominal output voltage before switching to stand-alone mode ▪ Synchronisation window operator-adjustable via system set-points
Output Frequency	<ul style="list-style-type: none"> ▪ Grid synchronised operation ▪ Synchronisation window can be operator adjusted via system set points ▪ Maximum Range: 47Hz to 53Hz
Continuous Rating	5kVA
Waveform	Sine-wave
Front Panel Interface	40x4 LCD panel with keypad displaying: <ul style="list-style-type: none"> ▪ Supply Voltage / Frequency ▪ Output Voltage / Current ▪ Output Power summation ▪ Input Current / Voltage ▪ Input Ah ▪ Accumulated output kWhrs ▪ Temperature / Solar radiation (optional – extra)
THD	Less than 5%



BID SPECIFICATION **FOR** **SOLAR POWER PACK** **&** **SOLAR HIGH MAST**



OPERATING PARAMETER	INFORMATION
RFI	Designed to minimise both conducted & radiated RFI emissions
Efficiency	Maximum 94%
Internal Protection System	<ul style="list-style-type: none"> ▪ Inverter overload ▪ Peak current (short circuit) protection ▪ Over temperature ▪ Over / Under voltage protection ▪ Over / Under frequency protection
Alarm Signals Grid Interface Protection	Via system fault relay (voltage free contact) <ul style="list-style-type: none"> ▪ Over / Under Voltage ▪ Over / Under Frequency ▪ Grid loss protection ▪ Islanding protection ▪ Circuit breakers
Earthing Provisions	AC bypassing to earth on inverter and DC inputs
Control Type	Voltage source, microprocessor assisted output regulation
Power Control	Phase Controlled Pulse Width Modulation (PWM)
DATA LOGGING	
Computer Ports	RS232 referenced to ground (non-isolated)
Within Inverter	One logging port available. MODICON Mod Bus interface for local or remote SCADA communications User adjustable averaging period from 1 minute to 24 hour results using 62.5 millisecond samples Internal storage capabilities configurable for 12 days storage PC based software to control and monitor the control system locally or remotely via modem
Parameters Include:	Average Output Voltage, Amps, Freq., Power summation Average Output Frequency Average Grid Voltage, Frequency, Amps Average DC Voltage Average Renewable Amps Average ambient or panel temperature (degrees C) Average solar radiation Historic time stamped event and fault diagnostics for the previous 32 actions and/or faults
External Logging	<ul style="list-style-type: none"> ▪ Remote communications package ▪ Online graphical trending, including comprehensive system logging including those points described above ▪ Ability to transfer data to PC filing system ▪ Ability to store and restore system set point configurations remotely
Communications Method	Protocol MODICON Mod Bus (RS232)



BID SPECIFICATION
FOR
SOLAR POWER PACK
&
SOLAR HIGH MAST



ENVIRONMENTAL	
Operating Temperature	5-50 degrees Celsius
Humidity	0-90% non condensing
Enclosure	Rated for IP30

5.0 Battery Bank

A battery bank shall include in the power system as a “spinning reserve”. The battery bank shall be designed to provide power for approximately four hours to a 50% depth of discharge (DOD). Flooded tubular battery bank shall be provided. These batteries have to be maintained on a regular basis by the Vendor. Typical maintenance would include application of petroleum jelly, topping of battery with distilled water and general cleaning.



BID SPECIFICATION **FOR** **SOLAR POWER PACK** **&** **SOLAR HIGH MAST**



SOLAR HIGHT MAST LIGHT **Technical Specification**

Solar Module 74 Wp x 2

- | 36 monocrystalline / Multicrystalline solar cells connected in series with redundant interconnects.
- | Laminates enclosed in a non-corrosive Aluminium frame.
- | Electrical output of the Modules shall be terminated in a weather proof Junction Box.
- | Supersaturate construction with toughened glass top surface to withstand wind up to 200 km/ hour.
- | Provision for the addition of diode in the Junction Box.
- | Protection against moisture ingress for the solar cells by lamination.

Electrical and Mechanical Features

Sl. No.	Typical Parameters of solar module	Unit	Value
1.	Peak Power (Wp)	Watt peak	74
2.	Open circuit voltage (Voc)	Volt	21.0
3.	Short circuit current (Isc)	Amp	5.0
4.	Voltage at Max. power point (Vmp)	Volt	17.0
5.	Current at Max. power point (Imp)	Amp	4.4
6.	Length	mm	1200
7.	Width	mm	530
8.	Depth	mm	38
9.	Weight	Kg	7.6

Charge Controller

The solar charge controller should charge the battery by the SPV Module till it reaches the final voltage (full charge condition).

Sl. No.	Parameters of Charge Controller	Unit	Value
1.	Battery over charge condition	Volt	14.2
2.	Battery deep discharge condition	Volt	11.0
3.	Short circuit condition	-	Protection
4.	Indicator for charging	-	Provided
5.	Indicator for deep discharge condition	-	Provided
6.	Under no load condition - Protection	-	Provided



BID SPECIFICATION FOR SOLAR POWER PACK & SOLAR HIGH MAST



INVERTER

Micro controller based

Digital Inverter has a micro controller based circuit that increased the efficiency and accuracy of inverter. This technology makes possible a high level of internal inverter management and control.

Auto Reset

Inverter has auto reset function in case of overload and short circuit. It will reset itself.

LED Indications

The LED indications on the front panel of the digital inverter give all information / display on battery charging, inverter ON, over loading, short circuit, main fuse blown etc.

Protection Circuitry

- | Inverter is protected from high battery voltage, low battery voltage and over current conditions.
- | State-of-the-art micro controller based technology
- | The technology used in inverter is micro controller based using MOSFETS.
- | Automatic low battery cut-out
- | Inverter protects the batteries from damage caused by over discharging by automatically shutting itself off when battery voltage falls to a preset level.

Sl. No.	Parameters of Inverter	Unit	Value
1.	Inverter output	Volt	220 \pm 10
2.	Wave form	-	Quasi wave form
3.	Input voltage range	Volt	11.0 – 14.5
4.	Length	mm	215
5.	Width	mm	150
6.	Height	mm	195
7.	Weight	Kg	7



BID SPECIFICATION FOR SOLAR POWER PACK & SOLAR HIGH MAST



Battery

Features :

1. Ironclad Tubular Technology
2. Electrolyte level indicator
3. High acid volume per ampere hour Deep cycle design
4. Resistance to abuse
5. Common side venting
6. Conform to IS-13369-1992

Type	Capacity in AH at 27°C at C/20	Dimensions in (mm)			Approx. weight in Kg.± 5%		Qty. acid (1.220 Sp Gravity)
		L ± 3	W ± 3	H ± 3	Dry	Filled	
IT 500	150 AH	500	187	430	34	61	23.8
OR							
INVARED	75 AH	400± 3	65± 3	200± 3	26	33	7

Lamp

- ⌋ All electrical accessories such as electronic ballast lamp holder are provided to a terminal block and mounted on an easily detachable gear plate.
- ⌋ Hanging arrangement for acrylic bowl for ease of maintenance conformance to IP-65 protection.
- ⌋ Conformance to IS 10322 specifications
- ⌋ High Power factor > 0.92
- ⌋ High purity aluminium brightened and anodised reflector

Sl. No.	Lamp detail	Operating voltage (Volt)	Watt (s)	Dimensions (MM)	Lumen	Life
1.	4x14w TS	150-300	60	710x375x175	5824	Lamp = 18000 Ballast = 50000



**BID SPECIFICATION
FOR
SOLAR POWER PACK
&
SOLAR HIGH MAST**



PROFORMAS



**BID SPECIFICATION
FOR
SOLAR POWER PACK
&
SOLAR HIGH MAST**



In Sealed Cover
Part – II
&
Part – III

Jharkhand Renewable Energy Development Agency

NIB No. JREDA / SPV2/SPP/2006-07

Bid Proforma - Solar Power Pack

TechtT Technical & Comme rcial Part : Part – I/ Price Part : Part – II

[Proforma | I]

Format for Forwarding Letter

(To be submitted by bidders on official letter-head of the company)

No.....

Dated

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

Sub.: **Offer in response to Notice Inviting Bid No..... for manufacture, supply and maintenance of Solar Photovoltaic Systems –Solar Power Pack & Solar High Mast.**

Sir,

We are hereby submitting our offer in compliance with the terms and conditions of the Notice Inviting Bid No. As specified, the offer has been submitted in two different envelopes duly marked and sealed. The offer is submitted in triplicate.

We also further declare:

- a) That we are submitting this offer under the above mentioned notice after having fully read and understood the nature of the work and having carefully noted all the specifications, terms & conditions laid down in the bid 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 offer/work as per specifications, terms & conditions of the Bid Documents and in exact configuration of the sample submitted on award of work.
- d) That our offer shall remain valid for placement of purchase orders up

Yours faithfully,

(Authorized Signatory)
Name
Designation
Company Seal



**BID SPECIFICATION
FOR
SOLAR POWER PACK
&
SOLAR HIGH MAST**



**Jharkhand Renewable Energy Development Agency
NIB No. JREDA/SPV/2/SPP/2006-07**

In sealed Cover
Part - II

**Bid Proforma – Solar Power Pack
Technical & Commercial Part : Part - I**

Proforma	II
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Format for confirmation of Minimum Eligibility Condition
(To be submitted by bidders on official letter-head of the company)

No.....

Dated

To,

The Director
Jharkhand Renewable Energy Development Agency
Plot No.-328/B, Road No.-4,
Ashok Nagar,
Ranchi. - 834002

Subject: **Confirmation of meeting the Minimum Eligibility Condition for NIB No. for Solar Power Pack & Solar High Mast.**

Sir,

Having examined the Bid documents of NIB No., we hereby confirm the following towards the minimum eligibility conditions to participate in the bid for Manufacture, Supply and Maintenance of Solar Photovoltaic Systems – Solar Power Pack

- 1) We are indigenous manufacturers of sub-systems of SPV Systems.
- 2) We have valid test certificates from _____ (Solar Energy Centre (SEC) Gurgaon or Electronics Regional Test Laboratory (East) (ERTL), Kolkata or Central Power Research Institute (CPRI), Thiruvananthapuram or Electronics Test and Development Centre (ETDC), Bangalore) tested during the year 2004-05/2005-06 for the specific model of Solar Power Pack to be supplied.
- 3) We confirm that these systems have been working satisfactorily since supply. Certificate to this effect from the concerned State Nodal Agency and other organisations is enclosed.
- 4) If any time, any of declaration is found to be false, our offer or order is liable to rejection.

Yours faithfully,

Encl. attached.

(Authorized Signatory)

Name
Designation
Company Seal



**BID SPECIFICATION
FOR
SOLAR POWER PACK
&
SOLAR HIGH MAST**



**Jharkhand Renewable Energy Development Agency
NIB No. JREDA/SPV/2/SPP/2006-07
Bid Proforma – Solar Power Pack
Technical & Commercial Part : Part - I**

Proforma III

In sealed Cover
Part - I I

Format for Compliance Certificate for meeting Technical Specifications -

(To be submitted by bidders on official letter-head of the company)

No.....

Dated

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

Subject: Compliance Certificate for meeting Technical Specifications – Solar Power Pack & Solar High Mast.

Sir,

Having examined and understood fully the contents of the Bid document of NIT No., we hereby confirm that the Solar Power Pack/ products offered by us herein meet the technical specifications and scope of work in to without any deviation whatsoever from those specified in the bid documents towards fulfilling the eligibility criteria & qualifications.

Yours faithfully,

(Authorized Signatory)
Name
Designation
Company Seal



**BID SPECIFICATION
FOR
SOLAR POWER PACK
&
SOLAR HIGH MAST**



**In Sealed Cover
Part – II
&
Part – III**

**Jharkhand Renewable Energy Development Agency
NIB No. JREDA/SPV/2/SPP/2006-07**

Bid Proforma : Solar Power Pack

Technical & Commercial Part : Part – I / Price Part : Part - II

Proforma IV

Format for authorizing for attending Bid Opening Meeting
(To be submitted by bidders on official letter-head of the company)

No.....

Dated

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

**Subject: Authorizing letter for attending Bid Opening Meeting of Notice Inviting Bid
No..... for bid on Solar Power Pack & Solar High Mast.**

Sir,

We hereby authorize (Name & Designation) to attend the Bid Opening Meeting to be held on at JREDA on behalf of our company. He is also authorized to provide any clarification, if any, and signing of documents, etc. at the time of opening.

The specimen signature of authorized person is as follows:

(Specimen Signature)
Name & Designation

Yours faithfully,

(Authorized Signatory)
Name
Designation
Company Seal



**BID SPECIFICATION
FOR
SOLAR POWER PACK
&
SOLAR HIGH MAST**



Proforma-V

**Jharkhand Renewable Energy Development Agency
NIB No. JREDA/ SPV/2/SPP/2006-07**

**In Sealed Cover
Part - II**

Bid Proforma – Solar Power Pack & Solar High Mast

Part – I : Technical & Commercial Part

1. (a) Name of the manufacturer / supplier :
:
(b) Postal Address :
:
(c) Telephone No., Fax No., E-mail

2. Name and designation of the authorised signatory to whom reference shall be made :

3. Nature of firm (individual/Partnership/ Pvt. Ltd./Public Ltd. Co./ Public Sector) :
[Attach attested copy]

4. Registration No. :

5. Financial capability :
(Attach certificate of financial capability from Bank/Financial Institution)

6. Name of material and model type offered :

7. Name of the work :

	BID SPECIFICATION FOR SOLAR POWER PACK & SOLAR HIGH MAST	
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8. Name of manufacturer of Solar Power :
Pack with full address :
(i) SPV SPP

(ii) PV Module

(iii) Control Electronics / Charge
Controller

(iv) Battery
9. Indicate if the price has been quoted net & :
firm FOR destination
(Prices shall be quoted as per format.)
10. acceptance of terms of payment :
11. Acceptance of penalty clause :
12. Indicate Validity of the offer from date of :
submission of bid.
13. Particulars of Earnest Money Deposit :
[Amount, Bank Draft No. / Bank
Guarantee No.]
(Attach evidence)
14. Particulars of payment for purchase of bill
of quantity & specification
(Attach evidence)
15. Indicate delivery period :
16. Acceptance of the technical :
specifications.
(If not accepted, attach relevant technical
specification duly approved and certified
by designated competent authority)
17. (i) Whether attested photocopy of BIS :
Certificate and/ or Test Certificate issued
by MNES Approved Institution/ Centres
attached.

(Certificate shall be as required by :
MNES)



BID SPECIFICATION
FOR
SOLAR POWER PACK
&
SOLAR HIGH MAST



- (ii) Whether proof of enlistment with MNES attached.
- (iii) Give Registration no. & other details on above, if any
18. Performance guarantee :
(Give details and period of guarantee)
19. Warranty details must be mentioned for each type of material and sub-system :
- (a) Solar Power Pack& Control Electronic
 - (b) PV Module
 - (c) Battery
20. Whether manufacturer / supplier is permanently registered as an SSI Unit of Jharkhand or NSIC Unit for SPV system (attach photostat of certified copy) :
21. Place where materials will be manufactured and place where materials will be available for inspection. :
22. Whether the bidder has submitted details with regard to supplies made to important organisations. :

	BID SPECIFICATION FOR SOLAR POWER PACK & SOLAR HIGH MAST	
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23. Any deviations made from the technical specifications and general terms & conditions of bid (Give details, if any) :
24. Whether up-to-date income tax and sales tax clearance certificate submitted (Give details) :
25. Details of any existing service network in Jharkhand
(Name & address of service centre, year of opening)
26. Other details and remarks, if any :

Signature of Authorised Signatory

Name _____

Designation _____

Company Seal _____

(Separate sheet may be used for giving detailed information in seriatum duly signed. This bid proforma must be submitted duly signed in case separate sheet is submitted).

	BID SPECIFICATION FOR SOLAR POWER PACK & SOLAR HIGH MAST	
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Proforma-VI

JHARKHAND RENEWABLE ENERGY DEVELOPMENT AGENCY

NIB No. JREDA/SPV/2/SPP/2006-07

In Sealed Cover
Part - II

Bid Proforma – Solar Power Pack & Solar High Mast

Part –I : Technical & Commercial Part

Information in Support of Meeting Eligibility Condition

Details of orders received & executed by manufacturer/supplier for supply of Solar Power Pack to different Govt. Organisation/JREDA/ Other Nodal Agency/Important Organisation & Institution during last three years.

Sl No.	Name of Agency/ Organisation	P.O. No./date Ordered Qty.	Name of Model	Delivery schedule	Qty. supplied within delivery schedule	Qty. supplied after delivery schedule	Date of full supply
1	2	3	4	5	6	7	8

- Note : (1) Attach Photocopies of Purchase Orders
(2) Attach Photocopies of certificate of satisfactory performance issued by concerned Agency/Organisation


Signature of Authorised Signatory

Name _____

Designation _____

Company Seal _____

(Separate sheet may be used for giving detailed information in seriatum duly signed. This bid proforma must be submitted duly signed in case separate sheet is submitted).

	<p align="center">BID SPECIFICATION</p> <p align="center">FOR</p> <p align="center">SOLAR POWER PACK</p> <p align="center">&</p> <p align="center">SOLAR HIGH MAST</p>	
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Proforma-VII

JHARKHAND RENEWABLE ENERGY DEVELOPMENT AGENCY

<p><u>In Sealed Cover</u> <u>Part - III</u></p>	<p align="center">NIB No. JREDA/ SPV/2/SPP/2006-07 <u>Bid Proforma – Solar Power Pack & Solar High Mast</u></p>
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Part – II : Price Part

Supply of Solar Power Pack & Solar High Mast

Model of SPP	i) Rating of SPP ii) Solar High Mast	Quantity of SPP of each rating	Unit prices of each of rating SPP – inclusive of taxes duties, freight , installation , testing supply & Commissioning) (Rs./system)	Total price of quantity offered inclusive of all taxes duties, transportation, Installation, testing & Commissioning etc. (Rupees)
<i>1</i>	<i>2</i>	<i>2</i>	<i>4</i>	

Note : 1 Price quoted for Solar Power Pack 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. F.O.R. destination at any site in Jharkhand and inclusive of performance testing and training. **Percentage/ amount of various factor considered in the unit price shall be mentioned here.**

2. Certified that rates quoted for Solar Power Pack are as per specifications, terms & conditions mentioned in the bid documents.

Signature of Authorised Signatory
Name _____
Designation _____
Company Seal _____

(Separate sheet may be used for giving detailed information in seriatum duly signed. This bid proforma must be submitted duly signed in case separate sheet is submitted).

	BID SPECIFICATION FOR SOLAR POWER PACK & SOLAR HIGH MAST	
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Proforma-VIII

Jharkhand Renewable Energy Development Agency

NIB No. : JREDA / SPV/2/SPP/ 2006-07

Bid Proforma – Solar Power Pack & Solar High Mast

Technical & Commercial Part : Part – I

Format for Warranty Card to be supplied with each Solar Power Pack & Solar High Mast

(To be supplied by bidders on official letter-head of the company)

WARRANTY CARD

Solar Power Pack & Solar High Mast

1. Name & Address of the Manufacturer/Supplier of the System :
2. Name & Address of the Purchasing Agency :
3. Date of supply of the system :
4. Details of PV module(s) supplied in the system :
 - a) Name of the Manufacturer :
 - b) Make :
 - c) Model :
 - d) Serial No. :
 - e) Wattage of the PV Module(s) under STC :
 - f) Warranty valid upto :
5. Details of Battery :
 - a) Name of the Manufacturer :
 - b) Make :
 - c) Model :
 - d) Batch/Serial No(s) :
 - e) Month & year of Manufacture :
 - f) Rated V & AH capacity at C/20 or C/10 rated at 27⁰C :
 - g) Warranty valid upto :

	BID SPECIFICATION FOR SOLAR POWER PACK & SOLAR HIGH MAST	
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6. Details of Electronics & other BOS item :
 - a) Name of the Manufacturer :
 - b) Make :
 - c) Model :
 - d) Serial No(s) :
 - e) Month & year of Manufacture :
 - f) Warranty valid upto :
7. Designation & Address of the person to be contacted for claiming Warranty obligations :

Place & Date:

(Signature)

Name & Designation

Name & Address of the Manufacturer / Supplier
(SEAL)

Filling Instructions :

- (1) The Solar Power Pack & Solar High Mast components will be generally warranted as per clause 18 of General Terms & Conditions & covering the MNES specified warranty. The manufacturer can also provide additional information about the system and conditions of warranty as necessary. The warranty card to be supplied with the system must contain the details of the system supplied as per format given above.
- (2) During the warranty period JREDA/ users reserve the right to cross check the performance of the systems for their minimum performance levels specified in the MNES specifications.

	<p style="text-align: center;">BID SPECIFICATION</p> <p style="text-align: center;">FOR</p> <p style="text-align: center;">SOLAR POWER PACK</p> <p style="text-align: center;">&</p> <p style="text-align: center;">SOLAR HIGH MAST</p>	
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Proforma-IX

Jharkhand Renewable Energy Development Agency

NIB No. : JREDA / SPV/2/SPP/ 2006-07

Bid Proforma – Solar Power Pack & Solar High Mast

Technical & Commercial Part : Part – I

Format for No Deviation Confirmation

NO DEVIATION CONFIRMATION

(Bid Document No.)

No.....

Dated

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

Sir,

We understand that any deviation/ exception in any form may result in rejection of bid. We, therefore, certify that we have not taken any exception/ deviations anywhere in the bid and we agree that if any deviation is mentioned or noticed, our bid may be rejected.

Note : This NO DEVIATION CONFIRMATION should be written on the letterhead of the bidder indicating tender ref. no. duly signed and stamped with date by a person competent and having the power of attorney to bind the bidder.

(SEAL AND SIGNATURE OF BIDDER)