

NOTICE INVITING TENDER
FOR
DESIGN, SUPPLY, INSTALLATION AND COMMISSIONING OF
SOLAR WATER HEATER, SOLAR PASTEURIZER AND WATER
PURIFIER ON TURNKEY BASIS

AT
NETARHAT VIDYALAYA, JHARKHAND

NIT NO.: JREDA/SWH/01/2012-13

Under Solar Thermal Programme

For the Financial Year 2012-13



JHARKHAND RENEWABLE ENERGY DEVELOPMENT AGENCY

328/B, Road No. 4, Ashoknagar, Ranchi.
Ph. : 0651-2246970,2247049, 2240692; Fax : 0651-2240665
E-mail : info@jreda.com; Website : www.jreda.com

Tender Submission Date	:	October 05, 2012 at 13:00 hrs.
Tender Opening Date	:	October 05, 2012 at 15:00 hrs.
Pre Bid Meeting Date	:	Sept 28, 2012 at 15:00 hrs.

Jharkhand Renewable Energy Development Agency (JREDA), Ranchi has pleasure in inviting offers from eligible Indian bidders for the design, supply, installation and commissioning of solar water heater, solar pasteurizer and water purifier on turnkey basis at Netarhat Vidyalaya with your best bidding price offer as per the specifications and terms & conditions mentioned in the bid document.

The tender document can be downloaded from the JREDA website: <http://www.jreda.com>

The bidders shall be required to deposit the earnest money (EMD) for an amount of Rs. 2,00,000/- (Rupees Two Lakhs only) refundable by way of demand drafts / Bank Guarantee and a non-refundable tender fee of an amount Rs. 10,000/- (Rupees Ten Thousands only) by way of demand drafts only. The demand drafts shall be drawn in favour of "Director, JREDA" payable at Ranchi. The earnest money deposit & tender fee must be enclosed in the envelope containing the Technical Bid.

Offer in financial bid should be written in English and price should be written in both figures and words. The offer should be typed. Hand written offer will not be acceptable.

The relevant supporting documents as required should be enclosed along with the Technical Bid.

Envelope of technical & financial bids should be individually sealed and then placed in a third envelope, sealed and super scribed with tender number and due date of submission and addressed to:

"The Director, JREDA, 328/B, Road No. 4, Ashok Nagar, Ranchi-834002, Jharkhand."

The Sealed tender should reach JREDA office, latest by **October 5, 2012 at 13:00 hrs.** Tender received beyond last date of submission will be rejected. No tender will be entertained by E-mail or FAX.

Pre-bid meeting is scheduled on **Sept 28, 2012 at 15:00 hrs.** at JREDA office. The prospective tenderer(s) are requested to attend the pre-bid meeting on scheduled date and time. The objective of this meeting is to address the queries of the prospective tenderer(s), technical specifications, terms & conditions and any other issues which may affect the project execution are open for discussion for wider interest of the bidder and competitive bidding.

At any time prior to the deadline for submission of the tender, JREDA may, for any reason, whether at its own initiative or in response to a clarification requested by the prospective tenderer(s), modify the tender document by amendment and it will be published on the website.

The prospective bidders(s) are advised to visit the installation site located at Netarhat Vidyalaya, Jharkhand prior to the submission of tender.

The technical bid(s) will be opened on **October 5, 2012 at 15:00 hrs** at JREDA office in the presence of the tenderer(s) or their authorized representative(s) who are present at the scheduled date and time.

The date and time of opening of financial bid(s) will be declared after evaluation of technical bid. Financial bid of only those tenderer(s) will be opened who qualify the technical evaluation on the specified date and time. The date, time & place of opening of the financial bid(s) will be intimated in due course of time.

In the event of the due date of receipt and opening of the tender being declared as a holiday, the due date of receipt / opening of the tender shall be the next working day at the same time and place.

JREDA reserves the right to reject any or all tenders, wholly or partly or withdraw the tender at any stage prior to the award of contract without assigning any reason whatsoever.

BRIEF INFORMATION ABOUT INSTALLATION SITE – NETARHAT VIDYALAYA

Netarhat-popularly called the 'Queen of Chota Nagpur', is 156 km west of Ranchi Town. It is a plateau stretching over 4 miles in length & two and a half miles broad. It is in the extreme south of the district, the highest point being 3800 feet above the sea-level. It is 96 miles west of Ranchi across seven hills.

The Hostels known as Ashrams are the soul of the Premier Institution where the inmates reside in the proper care of their Houser Masters (Aashram Srimanji) and House Mothers (Aashram Mataji). There are twenty one Ashram divided into seven sets. Every set comprises of three houses and a Kitchen centrally located.

All the 21 ashrams are at different locations in vidyalaya campus.

Cold Water Source: PHD Govt. Supply and Deep Bore Well.

PHD Govt. supply: Daily one Hour – Low pressure Supply and dependent on the availability of grid power. Overhead storage tank facility is not available.

Deep Bore Well: Due to high iron contents it is not suitable for drinking and solar hot water system. If water purifier is installed, then the water can be used for drinking and solar hot water system. Presently only four (4 Nos.) deep bore well is in functional condition.

Installation Location:

Due sloppy roof and low load bearing capacity of the Ashram structure supporting the roof (figure – 2 & 2a) the installation of solar hot water systems is not recommended on the roof top.

The most suitable and only option is open corridor (figure – 3). Open corridor is a place where regular activity is performed, so a suitable strength MS fabricated super structure need to be made at a height of 10-12 feet for the installation of solar hot water system and poly cold water tank.



Figure - 2



3
Figure – 2a



Figure - 3

Recommended System Capacity:

Solar Hot Water System:

1. 1000 LPD in each Ashram (1000LPDx 21 nos.) for bathing application
2. 1000 LPD x 1 no. for kitchen application for every three Ashram (1000x7nos.)

Solar pasteurizer System:

500 LPD x 1 no. for drinking application for every three Ashram (500x7nos.)

Water purifier System:

5000 LPH for every three Ashram (5000LPH x 7Nos.)

It has reported that the groundwater available at Netarhat contains Iron Oxide. The presence of Iron in the groundwater gives a reddish colour to it and it adds foul smell, bad taste, staining, deposition in the distribution & water heating system leading to high turbidity, poor heat transfer and other aesthetic and operational problems. Apart from this, it will clog the filter of the purifier and require frequent backwash of the filter. Thus it is a major concern.

To address this issue it is highly recommended to go for pre-treat underground water before it is being sent to purifier and Solar Heating System. Aeration followed by rapid sand filtration is the most commonly used method for removal of iron particles. Different mechanisms (physical, chemical and biological) may contribute to the removal of iron in filters and the effective mechanism depends on water quality and methods applied. Under the commonly applied treatment conditions in iron removal plants, the oxidation-floc formation mechanism is believed to be preferred. In this mechanism soluble iron present in groundwater is oxidized to insoluble iron and after precipitation, iron hydroxide flocs are removed in the rapid sand filters. The other mechanism i.e. absorption-oxidation may also be employed provided process efficiency is such that iron deposition in distribution networks & backwash is minimized to recommended acceptable levels.

Thus it is recommended to include construction of pre-treatment plant by the bidder. The supplier shall also install purifier to meet the water quality requirements with appropriate flow rate per day to match quantity of water needed by Solar Water Heating system and Solar Pasteurizer System.

The prospective tenderer(s) are advised to visit the installation site located at Netarhat Vidyalaya, Jharkhand prior to the submission of tender for better understanding of site location and conditions. Their assessment on installation site can be presented at the time of pre - bid meeting.

INSTRUCTIONS TO TENDERER

Tender should be submitted in two parts, Part – I (Technical Bid) & Part – II (Financial Bid). The envelope of Part – I should be superscribed as “Tender for Supply and Installation of Solar Water Heater at Netarhat Vidyalaya, Part – I Technical Bid” and the envelope of Part – II should be superscribed as “Tender for Supply and Installation of Solar Water Heater at Netarhat Vidyalaya, Part – II Financial Bid”.

1. Eligibility Criteria:

The Bidder's who fulfill the following requirements shall be eligible to apply.

- (i) Only manufacturers or their sole authorized distributor / dealer are eligible to bid. In case of authorized distributor / dealer an Authorization letter from Original Equipment Manufacturer (OEM) to bid / negotiate against this tender, must be enclosed with technical bid.
- (ii) In case of Authorized distributor / dealer, they should be a registered supplier of Solar Water Heating System with JREDA.
- (iii) The bidder should have an experience of at least three (03) years for supply, successful installation and commissioning of Solar Water Heater. At least two latest successful installation reports must be enclosed with the technical bid.
- (iv) The annual turnover of the supplier for each of the last three financial years shall not be less than Rs. 50.00/- Lakhs (Rupees Fifty Lakhs). The financial statements with net profit, duly audited / certified by Chartered Accountant (CA) of the last three years shall be enclosed with the technical bid in support thereof.
- (v) Signed & stamped compliance sheet of the technical specification of the Solar Water Heater, Solar pasteurizer and Water Purifier must be enclosed with the technical bid.
- (vi) The bidder shall submit the copy of the tender document and amendments thereto, if any, with each page of this document signed and stamped to confirm the acceptance of the entire terms & conditions of the tender.

The bid of any tenderer(s) who has not complied with one or more of the conditions of eligibility criteria and / or fail to submit the required documents as required or mentioned in tender document are liable to be summarily rejected. JREDA reserves the right to reject any or all tenders, wholly or partly or close the tender at any stage prior to award of contract without assigning any reason whatsoever.

2. **Earnest Money Deposit:** The bidder shall be required to deposit the earnest money (EMD) and non-refundable tender fee. The earnest money deposit (EMD) and tender fee must be enclosed in the envelope containing the technical bid.

The firms who are registered in the state of Jharkhand as MSME are exempted from furnishing the EMD and tender fee. Self-attested photocopy of registration certificate must be enclosed with technical bid.

3. **Rates:** Rates should be quoted in Indian Rupees (INR) on FOR destination upto Netarhat Vidyalaya, Jharkhand on **DOOR Delivery Basis** including supply installation and commissioning including all duties and taxes etc.
4. **Validity:** Quoted rates must be valid for a period of 180 days from the last date of closing of the tender. The overall offer for the assignment and quoted price shall remain unchanged during the period of validity. In case the bidder withdraws, modifies or changes his offer during the validity period, bid is liable to be rejected and the earnest money deposit shall be forfeited without assigning any reason thereof. The bidder should be ready to extend the validity, if required.
5. **Warranty / Guarantee:** The tender must be quoted with a minimum 24 months **On-Site comprehensive warranty / guarantee** and the period of guarantee will start from the date of the satisfactory installation / commissioning of the System. The system shall be guaranteed against any manufacturing defect, workmanship and poor quality of components and it will be the sole responsibility of the bidder to replace the faulty components within the warranty period.
6. **Delivery & Installation:** All the goods ordered shall be delivered & installed within 3 months from the date of issue of the purchase order. All the aspects of safe delivery shall be the exclusive responsibility of the supplier.
7. **Liquidated damage:** If the Supplier fails to deliver and install the System on or before the stipulated date, then penalty at the rate of 1% per week of the total order shall be levied subject to the maximum of 10% of total order value.
8. **Payment Term:** 60% payment of the total order value shall be released against delivery of the materials at the site after inspection of JREDA and balance 30% shall be released after the successful installation & commissioning of the System after JREDA inspection and satisfactorily running the system for period of minimum fifteen days. Balance 10% shall be released after successful completion of warranty period.
9. **Award of Contract:** After the due evaluation of tender(s) the contract shall be awarded to the lowest evaluated responsive tenderer (hereinafter referred to as the "Supplier").
10. **Security Deposit:** The Supplier shall be required to furnish a performance Security within 21 days for the date of commencing of the work order for an amount which is equal to the 10% of order value in the form of irrevocable bank guarantee issued by any nationalized bank in prescribed format.

The Performance Security as furnished by the Supplier shall remain valid for a period of Ninety days beyond the date of the completion of all the contractual obligations of the Supplier under the contract.

11. **Site Preparation:** The supplier shall inform to the Institute about the site preparation, needed for installation of System, immediately after receipt of the purchase order. Institute shall arrange / ready the site before the arrival of goods to ensure its timely installation and smooth operation thereafter.

The Supplier shall visit the Institute and see the site where the System needs to be installed and may offer his advice and render assistance to Institute in the preparation of the site and other pre-installation requirements.

12. **Applicable Law:**

- a. The contract shall be governed by the laws and procedures established by Govt. of India / Jharkhand, within the framework of applicable legislation and enactment made from time to time concerning such Commercial dealings / processing.
- b. Any disputes are subject to exclusive jurisdiction of Competent Court and Forum in Jharkhand, India only.
- c. The Arbitration shall be held in accordance with the provisions of the Arbitration and Conciliation Act, 1996 and the venue of arbitration shall be at Ranchi. The decision of the Arbitrator shall be final and binding on both the parties.

13. The quantity is tentative and it can be either increased or decreased.

Technical Specifications

Solar Water Heating System (SWHS) based on Flat Plate Collectors, Capacity 1000LPD at 60°C, Qty. 21 Nos. and 1000LPD at 60°C, Qty. 7 Nos. as per BIS conformity IS 12933

Flat Plate collector

Collector size:	Approx.2.1 Sq.Mtr area
Absorber area of the collector:	>1.92 Sq.Mtr
No. of Collectors:	Eight for every 1000 LPD
Absorber Material:	Copper
Coating:	Selective-Black chrome
Construction of Absorber:	Fin and Tube ladder type
Header & Riser pipe material:	Copper 22 swg
Header & Riser pipe size:	Φ25.4mm and Φ12.5mm respectively.
Bonding: Riser pipe to Fins:	Ultrasonic welding / Laser welding
Bonding: Riser pipe to Header:	Simple brazing
No. of Fins:	9
Absorbitivity of the Collector:	>95%
Collector frame:	Aluminum with Pure polyester powder coating.
Glass:	4 mm Toughened, low iron, Transmittivity >85%
End connection:	Adjustable free flow Brass flanges with EPDM gaskets
Collector –Mounting structure:	Mild Steel with pure polyester powder coating
Frame corners sealing:	Brass flanges with EPDM gaskets

Hot water Insulated Storage tank

Material:	Stainless Steel 304 minimum 1.2 mm thick
Tank Type:	Vertical / horizontal
Welding:	TIG (Tungsten Inert gas Welding)
Thermal Insulating material:	PUF
Thickness of Insulation:	50 mm
Tank Cladding:	SS -430
Tank design:	Suitable for withstanding 1kgf/cm ² (pressure.)
Electrical heater and Sacrificial anode:	Electrical back up 2 KW for 500LPD (1000LPD 2nos) sacrificial anode built in TYPE
Outer Tank End covers:	Aluminum with Pure Polyester powder coating

Piping

Interconnection pipes:	Piping includes House pipe with clamp along with GI b class / CPVC / kitech / multi layer
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Miscellaneous

Fasteners:	Stainless steel 304
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Other Details

Tank Cold Water Inlet size:	1"
Tank- Hot Water Outlet size:	1"

Solar Pasteurizer System for bacteria free safe drinking water by using FPC collectors Capacity 500LPD, Qty. 7 Nos. (as per BIS conformity IS 12933 for FPC)

Major Components: **Flat plate collector, pure water holding tank, pumps & controllers, pasteurizing chamber, interconnecting Piping and Collector-Tank Stands.**

Flat Plate collector

Collector size:	Approx. 2.0 Sq.Mtr area
Absorber area of the collector:	>1.92 Sq.Mtr
No. of Collectors:	Manufacturers are free to decide the number of collectors to achieve pasteurization temperature.
Water Output:	500 ltrs every day
Absorber Material:	Copper
Coating:	Selective-Black chrome
Construction of Absorber:	Fin andTube ladder type
Header & Riser pipe material:	Copper 22 swg
Header & Riser pipe size:	Φ25.4mm and Φ12.5mm respectively.
Bonding: Riser pipe to Fins:	Ultrasonic welding / Laser welding
Bonding: Riser pipe to Header:	Simple brazing
No. of Fins:	18 fins in each collector / any special collector to serve the purpose
Absorbitivity of the Collector:	>95%
Collector frame:	Aluminum with Pure polyester powder coating.
Glass:	4 mm Toughened, low iron, Transmittivity>=85%
Back Sheet:	Aluminum
Glass Beading and sealing:	EPDM
Grommets:	EPDM
End connection:	Adjustable free flow Brass flanges with EPDM gaskets
Collector –Mounting structure:	Mild Steel with pure polyester powder coating
Frame corners sealing:	Brass flanges with EPDM gaskets

Pasteurized water Storage tank

Material:	Stainless Steel 316
Size of the Tank:	500 ltrs inner tank
Tank Type:	Vertical / horizontal
Welding:	TIG (Tungsten Inert gas Welding)
Thermal Insulating material:	Not required
Thickness of Insulation:	Not required
Tank Cladding:	Not required
Tank design:	Suitable for withstanding 1kgf/cm ² (pressure.)
Electrical heater and Sacrificial anode:	Electrical back up required, for non sunny days sacrificial anode
Outer Tank End covers:	Not required

Piping

Interconnection pipes:	CPVC multi layer
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Miscellaneous

Fasteners:	Stainless steel 304
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Other Details

Pasteurization chamber:	75 degree C temperature should be achieved and water has to be pumped out after a time delay of 20 seconds, or manufacturer is free to design any temp and suitable time delay method to perform the pasteurization
Pumps and controls:	As per manufacturers design he may decide forced or gravity feed flow with proper solenoid valves and controls to achieve pasteurization
Heat exchangers:	Manufacturer is free to design as per his convenience Purpose is to bring down the water temp from pasteurization temp to room temperature (75 to 18/20/22 degree C of that particular day)
Heat exchangers type:	It should be with SS316 cage type / coil type which should fit in pasteurization chamber.

Water purifier System – 5000 LPH for every three Ashram (5000LPH x 7Nos.)

Appropriate water purifier system should be supplied. Manufacturer is free to design as per his convenience. Purpose is to bring down the water quality which is safe for Solar Water Heating System, Drinking water etc.

Water quality requirements

A = Recommended maximum concentration^a (mg/l except where shown otherwise)

B = Maximum permissible concentration^b (mg/l except where shown otherwise)

	ICMR		WHO	
	A	B	A	B
Physical				
Turbidity (units)	5	25	5	25
Colour (Units)	5	25	5	50
Odour	Nothing disagreeable		Unobjectionable	
Chemical				
pH, units	7-8.5	(6.5 or 9.2)	7-8.5	(6.5 or 9.2)
Total solids	---	---	500	1500
Calcium	75	200	75	200
Magnesium	50	150	50	150
Iron	0.3	1.0	0.3	1.0
Manganese	0.1	0.5	0.1	0.5
Copper	1.0	3.0	1.0	1.5
Sulphate	200	400	200	400
Phenols	0.001	0.002	0.001	0.002
Fluorides	1.0	2.0	0.5	1.0 - 1.5
Nitrates	20	50	---	50 – 100
Toxic				
Arsenic	--	0.2	--	0.2
Barium	--	--	--	--
Cadmium	--	--	--	--
Chromium	--	0.05	--	0.05
Cyanide	--	0.01	--	0.01
Lead	--	0.1	--	0.1
Selenium	--	0.05	--	0.05
Silver	--	--	--	--
Bacteriological	--	1 coliform per 100 ml	--	1 coliform per 100 ml

^a Constituents should not be present in excess of listed concentration where other more suitable supplier supplies are or can be made available.

^b Constituents in excess of the concentrations listed shall constitute grounds for rejection of the supply.

Information about the Bidding Firm

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

Sl.	Particulars	
1.	Name of the Bidder	
2.	Address of Bidder with Telephone, Fax, email	
3.	Address of the Registered Office	
4.	Address of the works	
5	Name & Designation of Authorized Signatory for Correspondence	
6	Nature of Firm (Proprietorship/Partnership /Pvt. Ltd./Public Ltd. Co./Public Sector)	
7	Permanent Account Number (PAN)/TIN (Attach proof)	
8	Firm's Registration Number (Attach proof)	
9.	Sales Tax/Value Added Tax Registration Number (Attach proof)	
10.	Office/ Dealer and Service network in Jharkhand with TIN No.(Give details)	
11.	Annual Turnover for last three year (Attach Proof)	2009-10
		2010-11
		2011-12
12.	Place where Materials will be Manufactured	
13.	Place where Materials will be Available for Inspection	

14.	Whether the Bidder has submitted details with regard to supplies made to important organizations.	
15.	Other details and remarks, if any	

Yours faithfully,
(Signature of Authorized Signatory)

Name :

Designation :

Company seal:

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

PRICE BID

Tender No.:

Tender Date:

S.No.	Description	Qty	In Figure	In words
1	Design, Supply, Installation & Commissioning of 1000LPD Solar Water Heating System including Hot and Cold water tank with supporting structure including cold & hot water pipeline and civil works on turnkey basis inclusive of all duties and taxes etc.	21 Nos.		
2	Design, Supply, Installation & Commissioning of 1000LPD Solar Water Heating System including Hot and Cold water tank with supporting structure including cold & hot water pipeline and civil works on turnkey basis inclusive of all duties and taxes etc.	7 Nos		
3	Design, Supply, Installation & Commissioning of Solar Pasteurizer System for Drinking water application. Capacity 500LPD including Hot and Cold water tank with supporting structure including cold & hot water pipeline and civil works on turnkey basis inclusive of all duties and taxes etc.	7 Nos		
4	Design, Supply, Installation & Commissioning of Water Purifier System including pipeline and civil works on turnkey basis inclusive of all duties and taxes etc.	7 Nos		

Yours faithfully,

(Signature of Authorized Signatory)

Name :

Designation :

Company seal :