

***Tender Document***

**for**

**Supply, Installation & Commissioning  
of  
3000 LPD Solar Water Heating System  
at  
Tripura Bhawan, New Delhi**



**Tripura Renewable Energy Development Agency (TREDA)**

Vigyan Bhawan, Pandit Nehru Complex, Gorkhabasti, Agartala  
Tele-fax: (0381) 2325900, Phone – (0381) 2326139,  
e-mail- [tredaagartala@gmail.com](mailto:tredaagartala@gmail.com).

***Certified that the NIT Document contains 19 pages***

*Handwritten signature and date: 23/5/13*



**Tender Notice No: F.6(9)/TREDA/NCES/Pt.-VI/ 714**

**Date 23/05/2013**

**NOTICE INVITING TENDER**

Sealed tenders are invited only from the bonafied, resourceful and experienced BIS approved manufacturers of FPC based Solar Water Heating Systems / channel partners accredited by the Ministry of New and Renewable Energy (MNRE) for Off-Grid and Decentralized Solar Applications under JNNSM for **“Supply, Installation & Commissioning of 3000 LPD Solar Water Heating System at Tripura Bhawan, Chanakyapuri, New Delhi”** as per MNRE / BIS specifications at specified locations on turn key basis.

**2. The Tender Paper is available & can be downloaded from the State Govt. websites named [www.treda.nic.in](http://www.treda.nic.in), [www.tripurainfo.com](http://www.tripurainfo.com) and [www.tripura.gov.in](http://www.tripura.gov.in) and the same may be submitted after being duly filled in prescribed format along with the payment of Rs.1000/- (Rupees One thousand) only in the shape of Demand Draft (Non-Refundable) drawn in favour of “The Director & Chief Executive Officer, Tripura Renewable Energy Development Agency (TREDA)” as the cost of Tender Document during submission of bid within due date & time through by person / post only. **No offer from any supplier/ dealer / vendor etc. will be accepted.****

**3. The tender should consist of 2 (two) parts as follows and shall be opened sequentially**

**3.1** Technical Bid.

**3.2** Financial Bid.

**3.1 Technical Bid-**

The bidder who's Technical Bids are found to be acceptable, settled and frozen shall be considered for opening of respective Financial Bids. The schedule of Technical bid is given at **Annexure-I**.

**3.2 Financial Bid-**

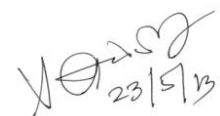
**3.2.1** The Financial Bid shall be indicating total cost of the items offered for the complete project on turn key basis. However price break up of individual items like ex-work cost, taxes and duties, transit insurance, transportation, erection, testing, commissioning & Civil works for proper grounding including storage and handling, if any, shall be indicated clearly. The total price shall be written both in figures and words. All pages of the offer to be duly stamped and signed by the bidders.

**3.2.2** Financial Bid will be opened after scrutiny and acceptance of Technical Bid. The date of opening of Financial Bid may be intimated on the same day when Technical bid is opened if possible or may be intimated subsequently.

**3.2.3** The offered rate should be firm for supply, installation and commissioning of the complete system comprising of all components as mentioned in the bidding schedule. The Ex-works cost, five year guarantee / warrantee, CST, Excise Duty, cost of Transportation, Packing, despatching and insurance, taxes & duties etc. shall be covered within the over all quoted price. No

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- additional payment will be admissible for any octroi / taxes or on any other reasons.
- 3.2.4 The bidding schedule for submission of Financial Bid has been prescribed in **Annexure-II**.
- 3.2.5 All eligible bidders should submit Financial Bid in separate sealed cover duly marked by Envelop-II superscripting Name of Bidder, Name of Work, NIT / Corrigendum No, Original / extended date of opening of Bid etc.
- 3.2.6 The bidders must mention validity of their quoted rates of the items to be supplied which should be of at least for a period of **180 days** from the date of opening of tender. Once rates are accepted and work order is issued, the rates shall be valid up to the period of completion / extended period of completion of the work.
4. The specification of the Solar Hot Water System are given on Annexure-I. If there is any left out specification that will be as per MNRE/BIS latest specifications and guidelines.
5. The last date of submission of Tender paper and bid is on **15/06/2013 at 1530 hrs** and it will be opened, if possible, on the same day at **1600 hrs** in the presence of the Tenderers or their authorized representative (having valid authorization letter) who may like to be present. In case the day happens to be a holiday, the tenders will be received and opened on the next working day within the specified time.
6. ***Tender without cost of tender document and EMD will automatically be rejected.***
7. Tenders submitted by post should be sent by **“Registered Post or by courier service with acknowledgement due”**. These should be posted **well in advance to avoid any delay in postal delivery. This office however shall not share any liability for postal delay or delay in delivery by the courier service.** Tenders received after the due date of submission shall liable to be rejected. Tenders received within specified time and date shall only be considered.
8. **Earnest Money:**  
Tender paper with Terms and Conditions shall have to be accompanied by an Earnest Money Deposit (EMD) @ 2.5% on the total quoted amount in the shape of D-call or Demand Draft drawn in favour of “The Director & Chief Executive Officer, Tripura Renewable Energy Development Agency, Agartala” from any Nationalized Bank having Branch at Agartala. Earnest money in cash or by cheque will not be accepted.
9. ***Price quoted shall be written both in words and figures. All pages of the tender document shall be signed and stamped by the tenderer before submission.***
10. The undersigned reserves the right to accept/reject any or all the Tenders or part thereof without assigning any reason thereon.

  
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**(S CHOWDHURY)**  
**Director & CEO**

  
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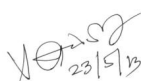
## TERMS AND CONDITIONS:

### 11. Definitions:

- 11.1 **'TREDA'** shall mean The Director & Chief Executive Officer or his representative of "Tripura Renewable Energy Development Agency, A constituent organization of Department of Science, Technology & Environment, Govt. of Tripura" with its Head office at Vigyan Bhawan, 2<sup>nd</sup> Floor, Pandit Nehru Complex, Gorkhabasti, Agartala, West Tripura District and shall also include its successors in interest and assignees.
- 11.2 The **'Contractor'** shall mean the **Firm/ Person (whose tender has been accepted by TREDA)** and shall include his legal representatives, successor in interest and assignees.
- 11.3 The **"Contract"** shall mean "Supply, installation & commissioning of 3000 LPD Solar Water Heating System at Tripura Bhawan, Chanakyapuri, New Delhi" including 5 Years Guarantee / Warrantee and shall be valid till the completion of all related works.

### 12. General:

- 12.1 The sealed envelopes containing the quotations should be superscripted with **"QUOTATIONS FOR Supply, Installation & Commissioning of 3000 LPD Solar Water Heating System at Tripura Bhawan, New Delhi" with NIT no. & Date, Due date & time etc."**
- 12.2 Tenders from those BIS approved manufacturers of FPC based Solar Water Heating Systems / channel partners accredited by the Ministry of New and Renewable Energy (MNRE) for Off-Grid and Decentralized Solar Applications under JNNSM only having valid BIS license or approval as on date of last date of dropping of tender or who had applied for the renewal of the same on or before last date of dropping of this tender will be accepted.
- 12.3 The bidders must have executed works of similar Solar Water Heating Systems for at least equal of the tendered capacity in the last three financial years. A certificate indicating name of the customer, No and date of work order, Cost, Date of completion must be enclosed. Tenderer must produce proof of satisfactory completion against corresponding work orders from the beneficiary organization. Experience of any collaborator/sister concern of the tenderer submitted as experience proof of the tenderer will not be accepted.
- 12.4 The tender prepared by the tenderer along with all the related documents shall be in English. Any printed literature furnished by the tenderer may be in another language so long as it is accompanied by an English translation of its pertinent passages. Unit measurements shall be metric in accordance with International system. All correspondence between the tenderer and TREDA shall also be in English.
- 12.5 The tenderer is expected to examine all instructions, terms and conditions, specifications, forms and formats etc. as mentioned/ enclosed in the tender document. Failure to furnish all information required in the tender document or submission of a tender not substantially responsive to the tender document in every respect will be at the tenderer's risk and is likely to result in out-right rejection of the tender.
- 12.6 The copy of the tender document downloaded from website must be signed & stamped with the legal name of the corporation/ company by the President/ Managing Director/ Secretary of the firm or a person duly authorized to bid. In case of authorized person the letter of authorization

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- by written power-of-attorney should be enclosed with the technical bid of the tender. The person or persons signing the tender shall put the initial in all pages of the tender document. The tender shall contain no interlink actions, erasers or overwriting except as necessary to correct the errors made by the tenderer in the preparation of tender. The person or persons signing the tender shall also sign & stamp at all such corrections.
- 12.7 The tenderer should not have been blacklisted or debarred by any Central/ State / Public Agency from carrying out similar business during last three financial years.
  - 12.8 Documents in support of eligibility must be enclosed with the tender. Offers without satisfying eligibility conditions will be out rightly rejected and no correspondence in this regard will be entertained.
  - 12.9 Tenders received late shall not be accepted. No separate receipt will be issued on submission of the tenders.
  - 12.10 Tender not accompanied with Cost of tender document & requisite EMD shall not be accepted.
  - 12.11 EMD of unsuccessful tenderer shall be returned after award of the contract/ order to the successful bidder. No interest will be paid on the earnest money.
  - 12.12 If any bidder withdraws his offer after opening of financial bid and within this period of validity or makes any modification in the terms and conditions of the quotation which are not acceptable to the TREDA, 50% of the deposited EMD will be forfeited.
  - 12.13 Earnest money deposit of the successful bidder will be released on satisfactory operation of the systems for 30 days after commissioning. No interest will be paid on the earnest money. The EMD of the successful tenderer may be forfeited alongwith other penal actions as deemed fit by the undersigned if the tenderer fails to submit the acceptance of the Work Order in Non-judicial Stamp of Rs. 20/- within the stipulated period or fails to execute the awarded work within the stipulated period, after acceptance of the Work Order.
  - 12.14 PAN Card (Photocopy), VAT Clearance Certificate, Income tax & Sale tax Clearance Certificates for the year 2012-13 are to be submitted along with the Tender.
  - 12.15 The rate quoted should be in Rupees and be firm, inclusive of all taxes and other charges for a complete system along with all accessories and fittings including supply, installation & commissioning of the system at specified locations including guarantee / warrantee for the period of 5(five) years.
  - 12.16 Monthly report on functionality status of each system is to be submitted to TREDA.
  - 12.17 During the guarantee / warranty period, MNRE/State agencies / Users reserve the right to cross check the performance of the systems with the minimum performance levels specified in the MNRE / BIS specifications.
  - 12.18 Rates quoted should be valid for at least 180 (one hundred eighty) days from the date of opening the tender. Once rates are accepted and work order is issued, the rates shall be valid up to the period of completion / extended period of completion of the work.
  - 12.19 Tenderers must have authorized technically equipped agents / dealers in New Delhi with full support of infrastructure and skilled technical persons for providing after sales services during Warranty period. The successful bidder should have to provide the list of such agents/dealers along with the list of technicians with address and telephonic numbers

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- to the office of the undersigned within one month after issuance of Work Order.
- 12.20 Any defect / fault noticed in the installed systems shall be rectified within 7days (Maximum) time to put back the system into operation. Any delay more than 7 days will be viewed seriously and may call for proportionate extension of warranty period and may also be linked with penalty both.
- 12.21 The supplier should supply and install a signboard of size 4 ft X 3 ft. made of Aluminum sheet and MS angle at a suitable location at the site of installation of each Solar Water Heating System as per direction of the Officer-in-charge. The signboard should be written as follows:-
- a) Name : Solar Water Heating System
  - b) Capacity of the plant: 3000 litres per day,
  - c) Implementing Agency: Tripura Renewable Energy Development Agency
  - d) Date of installation: \_\_\_\_/\_\_\_\_/20\_\_
- 12.22 The supplier should supply & fix up the name plate (size 8 inches X 4 inches) made of MS sheet mentioning Solar Hot Water Point, Temperature: 60 to 80 deg. C at each outlet/tap point.
- 12.23 Work should be completed within 60 days positively from the date of issuing work order.
- 12.24 The supply, installation & commissioning of the systems should be done as per the direction of Officer – in – charge, Tripura Renewable Energy Development Agency.
- 12.25 One copy of the operation and maintenance manual in English and Bengali for the system as per standard format are to be supplied to beneficiary and some spare copies to TREDA. The operation and maintenance manual should get approved from TREDA by the successful bidder.
- 12.26 The supplier shall be responsible for the satisfactory performance of the system for five years from the date of commissioning. Any complaint received from Authority of Tripura Bhawan, New Delhi / TREDA must be attended within seven days from the receipt of complaint in writing or telephonically, failing which TREDA will make the system functional and debit the expenditure to the party which will be deducted from the 10% remaining payment due to the manufacturer and the defaulter manufacturer will be blacklisted.
- 12.27 General specifications of the material are given on Annexure-I. If there is any left out specification that will be as per latest MNRE / BIS specifications.
- 12.28 Any damage of the existing structure, building etc. made by the successful bidder during execution of this work shall be made good as it was at his own cost & risk.
- 12.29 “The name of the implementing Agency: TREDA” should be embossed on the front side of the Collector, Hot Water Tank etc.
- 12.30 Bidders who have submitted bids to TREDA, became successful bidders but failed to accept the work order issued to them by TREDA within specified time period / failed to execute the works after issue of work orders, should not submit bid against this tender or otherwise their bids will not be accepted.
- 12.31 The Declaration by the Tenderer given at Annexure – IV should be submitted in their letterhead alongwith the offer/bid, otherwise the offer/bid would not be brought under consideration for evaluation.

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**13. Supply of materials:**

- 13.1 It is a turn key job for supply, erection, testing and commissioning of 3000 LPD Solar Water Heating System at Tripura Bhawan, Chanakyapuri, New Delhi including 5 years of warranty period and as such no extra payments against any unforeseen items / works will be paid. The supplier should be responsible for packing, forwarding, and dispatching, insurance and safe delivery of materials and Installation & Commissioning, including storage & handling as required at specific sites at their quoted price.
- 13.2 Delivery of the complete system at site shall commence from 20<sup>th</sup> day and the work should be completed within 60<sup>th</sup> day from the date of issue of the work order. Delivery schedule matching to the aforesaid time allowed shall be submitted along with the tender considering date of issue of work order as zero date.
- 13.3 Any delay in delivery except **forced majeure** shall be viewed seriously and may be linked with penalty as found deem fit by TREDA.

**14. Warrantee/Guarantee:**

- 14.1 Warranty/guarantee for all parts and components of the Solar Water Heating System should be for 5 (five) years from the date of commissioning.
- 14.2 Defective/ non-functioning Solar Water Heating System including Collectors, Hot Water Tanks, piping etc., shall be repaired / replaced free of cost by the successful bidder within the warranty/guarantee period for proper, sustained & reliable operation of the System.
- 14.3 Warrantee/guarantee Card is to be supplied with each system as per format specified in Annexure - III.

**15. Payment and other Financial Terms:**

- 15.1 No advance payment will be made.
- 15.2 90% payment of the contract value will be released on successful & satisfactory installation and commissioning of the Solar Water Heating System at Tripura Bhawan, Chanakyapuri, New Delhi against submission of bills along with installation & commissioning completion report (as per format supplied by TREDA during execution of work) duly signed by the concerned authority of Tripura Bhawan, Officer – in charge of TREDA, representative of the successful bidder and at least 5(five) photograph of each Systems (Both hard & soft copy).
- 15.3 10% amount against the supply, installation & commissioning will be retained as security deposit which will be released in phase manner at the rate of 2% on prorated basis at the end of respective years of the Warranty period on satisfactory performance.
- 15.4 All payments shall be made in Indian Rupees through A/C payee cheque only unless otherwise specified in the contract.
- 15.5 The provisional deduction of VAT at source shall be at the rate as notified by the Government of Tripura time to time.
- 15.6 2% income tax or the then prevailing rate will be deducted at source from all bills of the contractor as per provision of the Income Tax Rule under Section 194C. Tax Deduction Certificate(TDS)in proper format will be issued.

**16. Late Tender:**

No tender will be accepted after the deadline for submission of tender mentioned in the NIT and such tender will be rejected.

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**17. Legal Case:**

All disputes are to be settled within the jurisdiction of Tripura High Court, Agartala.

**18. Test Certificates for SPV Systems:**

Tenderers are required to submit test certificates for Solar Water Heating Systems from MNRE approved test centres as applicable. Certificate issued during 2010-11 or later will only be considered as valid. Test certificate issued prior to 2010-11 shall not be considered.

**19. Supporting Records:**

- 19.1 Previous credential / records of supply and certificate for design manufacture installation commissioning and Annual Maintenance inclusive of running, repair and maintenance for Solar Water Heating System to other buyer during last three financial years should be attached along with tender as performance certificate.
- 19.2 Experience of any collaborator/sister concern of the tenderer submitted as experience proof of the tenderer will not be accepted.

**20. Inspection and Testing of materials:**

- 20.1 Prior to placing formal order, Pre inspection of the manufacturing unit of the bidder eligible for getting the work may be made by the officials of TREDA at the cost and risk of the bidder to assess the capability.
- 20.2 The materials will be dispatched / installed by the successful bidder after inspection by the Director, TREDA or his representative at the bidder's premises or at site and acceptance of the same. The successful bidder shall provide without any extra charge, all materials, tools, testing equipments, labour and assistance of every kind which the inspecting officer may consider necessary for any test or examination which he may require to be made on the bidder's premises. TREDA can also get the systems tested from any Govt. approved test centre/ laboratory and the expenses shall be borne by the successful bidder. All the expenses for the inspection by the TREDA's representatives like TA/DA, boarding and lodging charges will be borne by the successful bidder.

**21. Quantity to be procured and splitting among more than one bidder:**

- 21.1 The quantity shown in the tender is most tentative and may be increased or decreased by 25% of tendered quantity at the discretion of tendering authority / buyer as per the accepted rate, terms & conditions stipulated in the Work Order of successful bidder.
- 21.2 Tendering authority reserves the right to split the quantity to be procured among two or more qualified bidders at the lowest rate quoted by the bidders or at negotiated rate.

**22. Amendments in Tender Document:**

- 22.1 At any time prior to the due date for submission of the tender, TREDA may for any reason, whether at its own initiative or as a result of a request for clarification/ suggestion by a prospective tenderer, amend the tender document by issuing a notice.
- 22.2 The amendments will be notified on the website at least **5 (five) days** before the proposed date of submission of the tender. TREDA will bear no responsibility or liability arising out of non-receipt of the information in time or otherwise. If any amendment is required to be notified within

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5 days of the proposed date of submission of the tender, the last date of submission shall be extended for a suitable period of time.

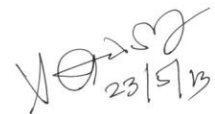
**23. Clarifications on submitted tender documents:**

- 23.1 During the process of evaluation of the tender, TREDA may at its discretion ask the tenderer for a clarification of his tender either in written or fixing meeting inviting bidders at TREDA Office, Agartala. The request for clarification and the response shall be in writing.
- 23.2 Any query regarding any clarification required by TREDA on the information submitted by the tenderer, must be replied by the tenderer within the allowed time schedule.

**24. Eligibility Criteria of the tenderer:**

BIS approved manufacturers of FPC based Solar Water Heating Systems / channel partners accredited by the Ministry of New and Renewable Energy (MNRE) for Off-Grid and Decentralized Solar Applications under JNNSM only having valid BIS license or approval as on date of last date of dropping of tender or who had applied for the renewal of the same on or before last date of dropping of this tender are eligible for participating in the tender. Tenders from any dealer/ supplier/ agents of the manufacturer will not be accepted.

25. The above terms and condition will be stipulated in the work order.
26. The successful tenderer(s) shall be required to execute an agreement on a valid stamped paper for strict compliance of the terms and conditions of the contract, vis-à-vis the NIT within ten days of placement of the supply order.
27. *Deviation of specifications and Terms and Conditions of NIT documents may cause for rejection of the offer(s) of bidders.*

  
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**(S. CHOWDHURY)**  
**Director and CEO**

  
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**TECHNICAL BID**

**PART-I : COMMERCIAL INFORMATION**

1. Name & address of the Manufacturer complete with telephone, mobile, fax nos. & Email etc.
2. Name & designation of the authorized signatory to whom reference shall be made
3. Present activities/business of the firm
  - i. Solar Water Heating
  - ii. SPV –BOS Manufacturer
  - iii. other activities
4. Type of organization
  - i. Sole proprietor
  - ii. Partnership firm
  - iii. Private Ltd. Company
  - iv. Public Ltd. Company
  - v. Any others
5. Name & address of subsidiaries, if any, with details of board of directors
6. VAT/ Sales Tax Registration Number(attach copy) Attached/ not attached.
7. Detail of any existing service network in Tripura (name & address of service centres, year of opening) Attached/ not attached.

8. EMD @ 2.5% of the offered value as per Annexure-II Attached/ not attached.

DD No. ....

Date .....

Name of the Bank: .....

Payable at .....

9. Attested copy of valid BIS Certificate Attached/ not attached.

10.. List of SWHS projects executed during last 3(three) Financial Years Attached/ not attached.

11. Literature/ leaflets on products Attached/ not attached.

12. Authority letter from company for signing the papers on behalf of company with seal Attached/ not attached.

13. Copies of RCs of other States to which the applicant is a party Attached/ not attached.

**PART-II (a): INFORMATION ON SYSTEMS REQUIRED WITH QUANTITY**

Sl. No	Item	Quantity
1	Supply, installation & commissioning of Solar Water Heating System as per latest BIS Specifications of capacity 500 LPD at 60°C to 80°C (not less than 60°C water temperature at output) complete with insulated Stainless Steel Tank, fittings, fixing and mounting structure properly grounded at site. [Details at Annexure – I- Part-II(b)]	6 units

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## **PART-II (b): TECHNICAL SPECIFICATIONS**

The Solar Water Heating System should comprise of (1) Solar flat plate collectors (2) Properly insulated Stainless Steel hot water storage tank and various other components (3) HDPE cold water tank ( Optional, as and where required ) (4) Collectors / Tank stand assembly (5) Necessary piping for cold and hot water (6) Instrumentation, (7) Brass valves.

### **1. Solar flat plate collectors:**

Solar flat plate collector shall conform to the latest BIS specifications and minimum overall dimension of the collector would be as under:

- a) Length (in mm) : 1860 $\pm$ 10 or 2030 or 2080
- b) Breadth (in mm) : 1240 $\pm$ 10 or 1030 or 1070
- c) Height (in mm) : 100 $\pm$ 10

However, the effective absorber area per 100 LPD system should not be less than 2 m<sup>2</sup>.

1.1 Cover Plate:-Cover plate shall be single piece toughened glass and minimum of 4 mm thick, free from bubbles/ rough surface as per latest BIS specification. Solar transmittance of the cover plate shall be minimum 82% at near normal incidence.

1.2 Collector Box:-Collector box shall be made of aluminum sections only. Type, grade, size, workmanship and finish of the material used shall be as per latest BIS specification. The minimum thickness of aluminum shall be as under

1.2.1 Channel section for sides	1.6 mm
1.2.2 Sheet for bottom	0.7 mm
1.2.3 Support for glass retaining	1.2 mm
1.2.4 Sheet for entire body	1.0 mm.

1.3 Absorber: - Absorber shall consist of riser, header and sheet for absorber. The diameter of the header shall be 25.4  $\pm$  0.5 mm and thickness of 0.71 mm made of copper only. The number of header will be two. The diameter of riser shall be 12.7  $\pm$  0.5 mm and thickness of 0.56 mm and made of copper only. The number of risers will be 9 or 10 and the distance between risers from centre to centre shall be 120 mm. Type, grade, size, workmanship and finish of the material used shall be as per latest BIS specification. Full length of all risers shall be welded with the absorber sheet. In case of brazing/soldering/tig welding of continuous nature, unbrazed/unsoldered portion should not exceed more than 10% of the length of the riser. For brazing/soldering, minimum 60% tin solder or suitable brazing material shall be used. The flux used in soldering shall be mechanically removed and neutralized with the solution of sodium carbonate to avoid corrosion after installation. The flux used should be non greasy and non corrosive.

Riser and header assembly should be designed for working pressure up to 2.5 kg/sq cm shall be tested for leakage at a minimum hydraulic pressure of 5 kg / Sq.m.

Sheet for absorber shall be made of copper only of minimum 34 SWG. Type, grade, size, workmanship and finish of the material used shall be as per latest BIS specification.

The absorber shall have selective coating with absorptivity >0.92 and emissivity <0.2

- 1.4 Collector box insulation: Insulation shall be provided at back and sides. Thermal resistance of insulation materials shall be minimum 0.96 m square degree C / W for back insulation and minimum 0.48 m square degree C / W for side insulation. The collector box insulation shall conform to latest BIS specification.
- 1.5 Gaskets and Grommets: Shall conform to latest BIS specification. The load of the absorber should not be on the insulation. It should be taken by the collector box. Insulation should not be allowed to slide. Glazing shall be fixed on the collector box by using EPDM/Neoprene/Synthetic rubber channels. The glass should be firmly held, without strain taking into account the expansions of glass. Top surface along the edge between the glass and the aluminium angle shall be caulked with suitable sealants such as zinc oxide based/rubber based/silicon rubber based or polysulphide rubber sealants.

## **2. Stainless steel insulated hot water storage tank**

The thickness of the water storage tank shall be uniform and not less than 20 SWG. The tank shall be non pressure type and made of stainless steel of grade X04Cr19Ni9 or X07Cr18Ni9 of IS 1570 part 5 – 1985, TIG welded. All sockets and internal fittings of the tanks should of stainless steel. The tank shall be insulated with Polyurethane foam 50 mm thick duly formed with injunction in a machine and cladding of GI precoated sheet. All sockets and internal fittings of the tanks should of stainless steel. External of the tank should be properly insulated so that hot water temperature does not decrease by more than 5 deg. C in about 16 hrs. times.

## **3. HDPE cold water tank**

The cold water storage tank should be of any ISI marked HDPE tank equal to the capacity of Hot water storage tank with Gun metal float valve (ISI marked).

## **4. Collectors / Tank stand assembly**

Collectors / Tank stand assembly shall be made of MS angle of minimum size 38 × 38 × 4 mm duly pre treated and stove enameled with black color paint. Alternative tubular structure with powder coating could also be provided. Each leg of the stand assembly should be duly grouted with PCC 1:2:4 of 1 ft. x1 ft. x1 ft. size (minimum).

## **5. Piping for hot and cold water**

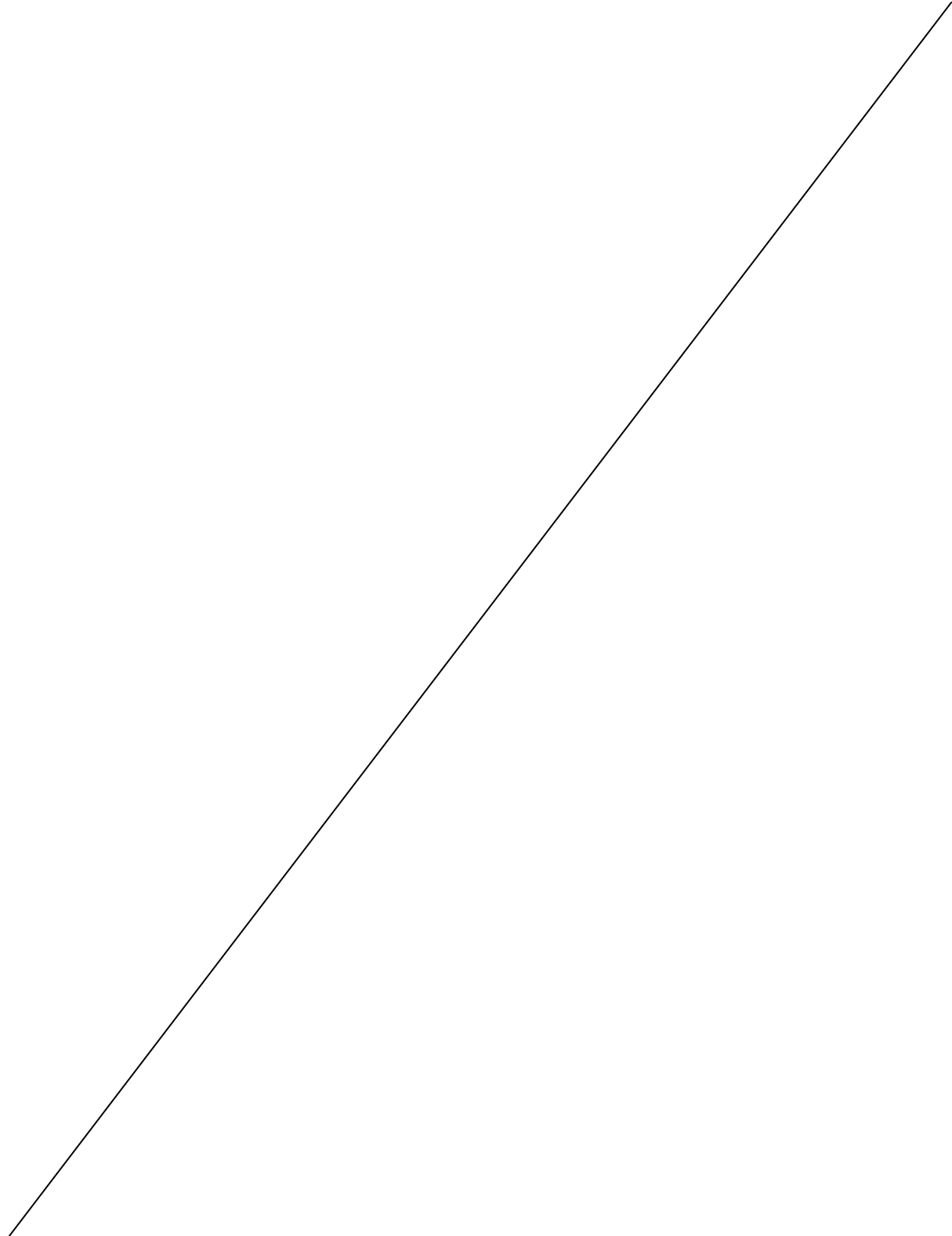
- 5.1 ½ inch. to 2 inch dia. ISI marked GI pipe, medium class of IS 1239 shall be used for cold water piping.
- 5.2 Polypropylene pipes conforming to latest BIS specification for use as drinking water supplying pipes and also suitable for carrying hot water up to the temperature of 120 degree centigrade without any considerable loss of temperature of hot water up to the end use point, may be used for the hot water piping.
- 5.3 The pipe line should be properly supported and fixed with clamp with the help of suitable size stand/civil structure (cement concrete ratio 1:4) ISI mark Gun metal strainer of standard make should be fitted in the main cold water supply line before the system.

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**6. Instrumentation**

- 6.1 Temperature gauge: 1 No. (for Hot Water Storage Tank/Outlet).  
Temperature gauge shall be ISI Marked – Dial Type – Duly calibrated and suitable for temperature ranges (0 to 120 deg C).
- 6.2 Water meter -1 no. at the inlet of cold water tank.

**7. Two brass valves ISI marked are to be supplied: one for inlet, one of outlet.**



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**Financial Bid**

**Part-I:- Bidding Schedule for Supply, Installation & Commissioning of Solar Hot Water Plant:**

<b>Sl. No</b>	<b>Item</b>	<b>Qty.</b>	<b>Unit</b>	<b>Cost without electrical back up (In Rs.) with Detailed breakup (Basic cost, transportation, taxes, Packing &amp; Fright charges, Installation &amp; Commissioning charges etc.)</b>	<b>Total cost without electrical back up (Rs.)</b>
1	Supply, installation & commissioning of Solar Water Heating System as per latest MNRE / BIS Specifications of capacity 500 LPD at 60°C to 80°C (not less than 60°C water temperature at output) complete with insulated Stainless Steel Tank, fittings, fixing and mounting structure properly grounded at site including 5 (five) years Warranty Period.	6 units			
<b>TOTAL</b>					

*Certified that:*

- 1. Above rates are in accordance with the specifications & various terms & conditions mentioned in the tender document.*
- 2. The rates are inclusive of all taxes and duties what so ever,*
- 3. Any other item as required for commissioning the system for commercial and reliable operation to be provided by within the quoted price.*

**Date**

**Signature of bidder & seal**

*Handwritten signature and date: 23/5/13*

**Part II :- Charges for additional items**

- i)** Supply & fitting, fixing, laying of Pipes including supply of bends, sockets etc. as required:

Sl. No	Size (Dia.)	Rate( in Rs.) per metre for Cold water pipe line ( ISI marked GI pipe )	Rate(in Rs.) per metre for Hot water pipe line as per Annexure-I, Part-II(b)5.
a)	½ " dia.		
b)	¾" dia.		
c)	1" dia.		
d)	1.5" dia.		

<b>ii)</b>	Civil Works ( CC work 1:2:4)	Rate per cubic feet
<b>iii)</b>	Supply and fitting, fixing (excluding grouting) of Stand assembly suitable for installation of HDPE cold Water Tank (Sintex or similar type) of 500 / 100 Litre capacity made of MS angle of minimum size 38 X 38 X 4 mm duly pretreated and stove enameled with black colour paint (preferably of a design that can be instantly installed at site with nuts & bolts)	Rate per Kg.
<b>iv)</b>	Supply and fitting, fixing at site of HDPE cold water tank made of Sintex or other ISI marked brand of capacity 100 litres capacity.	Rate per Unit
<b>v)</b>	Supply and fitting, fixing at site of HDPE cold water tank made of Sintex or other ISI marked brand of capacity 500 litres capacity.	Rate per Unit
<b>vi)</b>	Supply, fitting & fixing of Chrome plated ISI marked brass tape of ½ inch. Dia.	Rate per Unit
<b>vii)</b>	Supply, fitting & fixing of ISI marked brass Gate Valve of 1 inch. Dia	Rate per Unit
<b>viii)</b>	Supply, fitting & fixing of ISI marked brass Gate Valve of ½ inch. Dia	Rate per Unit
<b>ix)</b>	Supply, fitting & fixing of ISI marked brass Gate Valve of ¾ inch Dia.	Rate per Unit



<b>xj)</b>	Supply, fitting & fixing of ISI marked brass non return valve of ½ inch Dia.	Rate per Unit
<b>xij)</b>	Supply, fitting & fixing of ISI marked brass non return valve of ¾ inch Dia.	Rate per Unit

**Notes-**

- a) Any other item / items not mentioned above but is/are required for successful commissioning of the system for commercial and reliable operation is / are to be provided by supplier within their quoted price.
- b) Bidders are required to follow the details of technical specification mentioned at Annexure – I- Part-II(b) while quoting rates for each item.

**Date**

**Signature of bidder & seal**

*(A large diagonal line is drawn across the signature area, indicating that the signature and seal are not present or have been crossed out.)*

*(Handwritten signature and date: 23/5/13)*

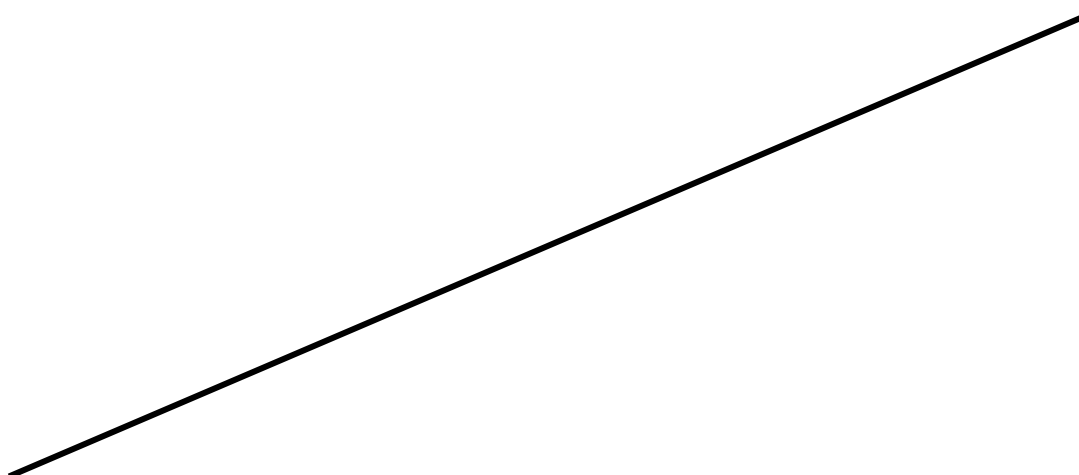
### **Annexure-III**

#### **Format for Guarantee card to be supplied with each Solar Hot Water Plant / System**

1	Name & Address of the Manufacturer of the system	
2	Name & Address of the Purchasing Agency	Tripura Renewable Energy Development Agency (A Constituent Organization of DSTE, Government of Tripura), Vigyan Bhawan, Pandit Nehru Complex, Gorkhabasti, Agartala, Tripura, Ph-0381-2325900/2326139, email- tredaagartala@gmail.com.
3	Name & address of beneficiary	
4	Capacity of the Plant	
5	Date of installation of the system	____/____/20____
6	Sl. Number of the System	
7	Warranty valid up to (5 years from the date of commissioning)	____/____/20____
8	Name, designation & address of the person to be contacted for claiming guarantee obligations	

Place & Date:

**(Signature)**  
**Name & Designation**  
**Name & Address of the Manufacturer/Supplier**  
**(SEAL)**



## **Annexure- IV**

### **DECLARATION BY THE TENDERER:**

**(Regarding Tender Notice No: F.No.6(9)/TREDA/NCES/Pt.-VI/714, dated 23/05/2013)**

I/We \_\_\_\_\_ (hereinafter referred to as the Tenderer) being desirous of tendering for the work under the above mentioned tender and having fully understood the nature of the work and having carefully noted all the terms and conditions, specifications etc. as mentioned in the tender document, DO HEREBY DECLARE THAT-

1. The Tenderer is fully aware of all the requirements of the tender document and agrees with all provisions of the tender document.
2. The Tenderer is capable of executing and completing the work as required in the tender.
3. The Tenderer accepts all risks and responsibilities directly or indirectly connected with the performance of the tender.
4. The Tenderer has no collusion with other contractor, any employee of TREDA / Department of Science, Technology & Environment, Govt. of Tripura or its autonomous bodies or with any other person or firm in the preparation of the bid.
5. The Tenderer has not been influenced by any statement or promises of TREDA / Department of Science, Technology & Environment, Govt. of Tripura or its autonomous bodies or any of its employees but only by the tender document.
6. The Tenderer is financially solvent and sound to execute the work.
7. The Tenderer is sufficiently experienced and competent to perform the contract to the satisfaction of TREDA.
8. The information and the statements submitted with the tender are true.
9. The Tenderer is familiar with all general and special laws, acts, ordinances, rules and regulations of the Municipal, District, State and Central Government that may effect the work, its performance or personnel employed therein.
10. The Tenderer has not been debarred from similar type of work by TREDA and or Government undertaking/ Department.
11. This offer shall remain valid for acceptance for 180 days from the date of opening of the tender.
12. The Tenderer has attached herewith the earnest money as required in the tender document.
13. The Tenderer accepts that the earnest money be partially / absolutely forfeited by TREDA as per the terms & conditions laid down in this NIT.
14. The Tenderer gives the assurance to execute the tendered work as per specifications, terms and conditions.

**(Signature of tenderer)**

DATE WITH SEAL

***Note: This declaration in the letterhead of bidder (s) should be submitted along with the technical bid.***

Handwritten signature and date: 23/5/13