



HIMURJA
(H.P. GOVT. ENERGY DEVELOPMENT AGENCY)
SHIMLA

NO: HIMURJA (F-7)-ETC- SWHS/ 2016-17

(Evacuated Tube Collector Type)

TENDER DOCUMENT FOR DESIGN, MANUFACTURING , SUPPLY, ERECTION,
TESTING AND COMMISSIONING OF SOLAR WATER HEATING SYSTEMS
OF ETC TYPE AS PER LATEST BIS / MNRE SPECIFICATIONS IN H.P.

Issued By:

Name of the firm

Dated:

Date of opening: **19-04-2016**

Time of opening: ---- 3 P.M.

Price of document Rs. 5,000/-

<p>HIMURJA H.P. Govt. Energy Development Agency 8-A,SDA Complex, Kasumpti, Shimla-171009. Telephone No: 0177- 2628074 Fax No: 0177-2622635</p>
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**(H.P. GOVT. ENERGY DEVELOPMENT AGENCY)
SHIMLA-171009**

Tender Notice

Sealed tenders are hereby invited from the BIS/MNRE approved manufacturers who are involved for design, manufacture, supply, erection, testing and commissioning of Solar Water Heating Systems (ETC Type) of different capacities according to the latest BIS/MNES specifications under HIMURJA offices anywhere in H.P. The tender document can be purchased from the office of the undersigned by paying Rs. 5 000/- only in the shape of demand draft in favour of Project Director-cum-Deputy Chief Executive Officer, HIMURJA, Shimla from 28-03-2016 to 18-04-2016 up to 5 PM. The tenders duly sealed will be received up to 2 PM on 19-04-2016 and will be opened on the same date at 3 PM in the presence of the tenderers or their authorized representatives who may like to be present. The Tender Documents can also be downloaded from the website of HIMURJA i.e. himurja.nic.in.. The cost of the documents in that case can be deposited along with the tender in the shape of demand draft in favour of Project Director-cum- Deputy Chief Executive Officer, HIMURJA, Shimla Separately. The tenderers can quote any one or all the Lots and furnish EMD accordingly.

Document No.	Name of work	Earnest Money
NO: HIMURJA (F-7)-ETC- SWHS/ 2016-17	Design, manufacture, supply, erection, testing and commissioning of Solar Water Heating Systems ((ETC Type) of different capacities in H. P. according to the latest BIS/MNES specifications at different places anywhere in H.P	Rs.50,000/- only

Terms and Conditions:

- (i) Tenders not received on prescribed form and manner shall not be considered and will be rejected out-rightly. Tenders without earnest money will not be considered.
- (ii) HIMURJA reserves the right to reject any or all the tenders without assigning any reason. Conditional / telegraphic tenders will not be accepted.
- (iii) The tenderer should be BIS/MNRE approved manufacturers of ETC type Solar Water Heating Systems empanelled with MNRE under JNNSM.
- (iv) The bidder should have income tax/sale tax clearance, CST/ VAT registration etc. as required under the rules. Balance sheet of last three years is required with tender.

Executive Engineer
HIMURJA, Urja Bhawan,
Kasumpti, Shimla- 171009.

INSTRUCTION TO BIDDERS & GENERAL TERMS AND CONDITIONS

1 SCOPE OF WORK

The specification covers design manufacture, supply, erection , testing and commissioning of Solar Water Heating Systems of following ratings without heat exchangers with ETC Type collectors)/ tubes according to the latest BIS/MNES specifications under HIMURJA offices/ Block offices anywhere in H.P including transportation charges .

Lot No.	Rating
LOT A	100 LPD
LOT B	200 LPD
LOT C	500 LPD
LOT D	1000 LPD
LOT E	2,000 LPD

The design and layout of the SWHS to be supplied should also be submitted with the tender documents along with following provisions.

- a) Installation on inclined as well on plain roof depending on the site conditions.
- b) Provision of draining out the system (collector & tank).
- c) In case of Domestic System arrangement for mounting of cold water tank on hot water storage tank.
- d) Provision to avoid deposit in tank and pipes due to calcification be made such as sacrificial anode or any other arrangement and be indicated with write up .

Suitable steel structure for mounting the system on both types of roof shall form part of the contract including transportation charges . Adequate mixing arrangement of cold water in hot water tank is required to be made and shown in drawing. The Spares along with monkey guard protection as shown in price bid be quoted separately.

2 ELIGIBILITY

The manufacturers of ETC type collectors for Solar Water Heating Systems **empanelled with MNRE** and have tested the systems as per National standards / MNRE specification as MNRE guidelines are only eligible for tendering. The tenderer should have income tax/sale tax clearance, CST/ VAT registration etc. as required under the rules. The Tenderer should have adequate financial stability and status to meet the financial obligations pursuant to the scope of the works.

HIMURJA may order for the supply and installation of the Solar Water Heating System on more than one tenderers on the lowest approved rates to fulfill the requirements within scheduled time period and to expedite the programme in the state.

3 SUBMISSION OF BIDDING DOCUMENTS

Sealed tenders containing Techno- Commercial Bid and Price bid along with requisite earnest money will be received as per NIT. Tenders not received on prescribed form / manner and as per terms and conditions stipulated in Tender Notice shall not be considered and will be liable for rejection straightway. The offer should be submitted on the forms issued with the tender. The technical bids will be opened in the first instance and the financial bids of only those firms will be opened thereafter, who qualify technically. The offer should be submitted on the form issued with the tender. The copy of the certificate issued by MNRE should be attached with the tender documents. . The technical and Financial bids must be submitted in the sealed covers super-scribed tender for the work and addressed to Project Director-cum- Deputy Chief Executive Officer, HIMURJA, Shimla-9.

4 EARNEST MONEY

Earnest Money deposit amounting to Rs. 50,000/- only (Rupees Fifty Thousand only) must accompany each tender in the shape of Bank Draft in favour of Project Director-Cum-Deputy Chief Executive Officer, HIMURJA, Shimla-9 payable at Shimla and should be kept in the technical bid.

The E.M.D. in the shape of Bank Guarantee or any other form other than prescribed will not be entertained. No interest shall be payable on the amount of earnest money and the same will be released, after the tenders have been decided, to those tenderers who fail to get the contract. The tenders of those manufacturers/firms who do not deposit the earnest money in the prescribed manner will be summarily rejected and their tenders will not be considered. The earnest money will be treated as security against the contract. The tenderers can quote any one or all the Lots and furnish EMD accordingly.

5 SEALING AND MAKING OF TENDERS

- (a) The tender must be complete in all technical and financial respect and should contain requisite certificates, informative literature etc. as required in the specification. The offer should be submitted on the form issued with the tender. The bids should be in sealed covers. The bids will be opened of only those firms who submit the EMD in prescribed manner. The bids must be super scribed tender for the work and addressed to Executive Engineer, HIMURJA, Shimla-9.
- (b) The tenderer should submit price bid duly signed on the original financial bid attached with these tender documents. The first envelope should contain Techno – Commercial bid and Earnest Money, Test Certificate, technical specification etc.
- (c) Technical features will be offered as per Annexure VI by the tenderer.
- (d) The acceptance of the tenders will rest with Project Director-cum- Deputy Chief Executive Officer, HIMURJA, HIMURJA, Shimla-171009, who does not bind himself to accept the lowest tenders and reserves the authority to reject all the tenders received without

assigning any reason. All the tenders in which any of the prescribed conditions are not fulfilled or are incomplete in any respect are liable to be rejected.

- e) Telegraphic and conditional tenders will be rejected. The offer should be submitted on the forms issued with the tender. The technical bids will be opened in the first instance and the financial bids of only those firms will be opened thereafter, who qualify technically.

6 VALIDITY OF BIDS

The bid will remain valid for the period of 12 months from the date of opening of it and the same can be extended beyond one year if required with the consent of the suppliers. In case any bidder withdraws its bid within the validity period, or fails to accept the order within validity, the earnest money will be forfeited.

7 BID PRICES

The tenderer shall quote FIRM prices in Indian Rupees. The rates must be quoted F.O.R. destination stations of respective beneficiary under HIMURJA offices/ Block offices anywhere in H.P. . Only firm rates should be quoted . The tenderer shall indicate Lot wise prices on the appropriate price bid schedule attached to these documents.

The rates should include hot water and cold water pipe line of approved class and also rate for extra pipeline per meter.

8 SAMPLE OF SWHS

Components / sample of the material to be used in the fabrication of the system should be submitted alongwith the tender documents in this office. Dimensional drawing of ETC type collector with complete bill of material will be supplied with the tender. The drawing of stand required to be installed on the inclined roof as well on plain roof depending on the site conditions shall be submitted with the tender in case of each Lot. General arrangement drawing of complete system alongwith bill of material and accessories be given with the tender in case of each LOT. One sample of instruction manual will also be supplied with the bid.

9 CONTRACT AGREEMENT

The Firm will have to enter into a Contract Agreement valid for one year with this Agency for carrying out the aforesaid work , within 15 days of the receipt of the supply order. In case Contract Agreement is not entered within the stipulated period the supply order will be cancelled and EMD will be forfeited without any further notice.

10 TERMS OF PAYMENTS

60% payment of the Solar Water Heating Systems will be released by this office on the production of receipt of the material in good condition and as per the specifications, the bills

duly verified by the Project Officer. 35% payment will be released on installation of the systems with the commissioning certificate duly verified by the concerned Project Officer. The bills for 5% payment will be released after verification from concerned Project Officers after completion of warranty period.

11 DELIVERY PERIOD

The Solar Water Heating Systems are to be supplied and installed within 30 day's from the date of issue of the supply order or as per delivery schedule to be mentioned in the supply order. The time and date stipulated in the tender for the supply of equipment entrusted to the supplier shall be deemed to be essence of the contract failing which the EMD/security deposit will be forfeited and the job would be got done at the cost and risk of the supplier from any other vendor/ Agency in addition liquidated damages.

12. LIQUIDATED DAMAGES

In case the supply is delayed beyond the stipulated date of delivery except in force majeure conditions, the liquidated damages (LD) not amounting to penalty @ ½ % per week or part thereof of the undelivered portion of the supply, subject to maximum of 5 % of the contract value (FOR Cost) shall be recoverable as a predetermined loss caused to HIMURJA due to delayed supply as a sum presently due and payable without any reference to the court or Arbitration or adjudication. The claim under this clause is without prejudice to other claims / rights of HIMURJA in this contract such as loss of subsidy etc. . The amount of (LD) can be recovered from any due payment / security.

13. TEST AND INSPECTION

The firm will inform this office one week in advance when the consignment is ready for inspection. The inspection of the complete system will be carried out either at the works of the manufacturer or at site as per BIS/ MNRE specifications and guide lines . After successful testing, dispatch clearance will be given.

14. GUARANTEE & WARRANTY

The Solar Water Heating Systems will be guaranteed for a period of **Five** years from the date of installation of the system. In addition to the guarantee of the Solar Water Heating System the supplier shall guarantee satisfactory performance of the system for **Five** years and shall be responsible for the period for any defects that may develop. Such defects shall be removed within 15 days at his own cost when called upon to do so by HIMURJA.

15. INVOICE AND DESPATCH:

One copy of invoice and receipted challan shall be forwarded in advance to Head quarter to facilitate the payment in advance.

16. PACKING

The supplier shall make proper packing arrangements of the systems so as to protect them from deterioration and damage during transportation to the site. The supplier will be held responsible for all the damages due to improper packing. The material to be supplied under the contract shall be fully insured against loss or damage incidental to manufacture or acquisition, transportation shall be included in the bid price.

17. SECURITY:

The Earnest money will be treated as security deposit .

18. DISPUTES:

All the complaints in the consumer protection forums about these supplies will be the liability of the supplier. In case of any dispute relating to the supplies about the quality, manufacturing defects and specifications even after the expiry of the guarantee period, it shall be the sole liability of the Firm at any stage to settle the same in Consumer Protection legal Forums & other Judicial Forums. The Purchaser reserves the right to issue supply order further , if required after keeping in view the performance of the Firm even at a later stage.

19. INSTRUCTION AND MAINTENANCE MANUAL

The supplier shall have to supply one maintenance manual with each Solar Water Heating System to the user.

20. PRICE LOW CLAUSE:

If at any time during the supply period the firm offers Solar Water Heating systems at similar terms and conditions and technical specifications as the case may be at a lower rate than contained in this Agreement, then such reductions will also be applicable to this organization and the benefit will have to be passed on to HIMURJA by the firm.

21. SPECIFICATION:

The collectors / tubes will be as per relevant IS with latest amendments. The tenderer will fill up the technical particulars as per Annexure VI on the basis of which evaluation will be done. All the terms and conditions and specifications prescribed in the tender document shall form integral part of this Agreement. All the parts of the system will conform to MNRE/ BIS specifications under JNNSM and as per the detailed specification of various components of Solar Water Heating systems to be installed in H.P. . Make and specification of accessories & tubes as specified in the test report will have to be specified and supplied .

22. FORCE MAJEURE:

The Supplier / Manufacturer will not be liable for loss or damage due to delay in manufacture and delivery resulting from any causes beyond the suppliers / contractors reasonable control

including but not limited to compliance with regulations, orders or instructions of any federal state or municipal, Government or Agency thereof, Acts of God, Acts of omissions of the purchaser, Acts of civil and Military authority, Fire, Floods, Strikes, Lockouts,, Altercations, Embargoes, War, Riots. Delay in transportation, to obtain necessary labour, manufacturing facility or inability to obtain material due to import or non availability of raw material, any failure or restriction of power supply and delay in releasing payment shall not be considered FORCE MAJEURE circumstances for the purpose of delay in execution. The onus of proving that the work was delayed due to Force Majeure shall rest with the supplier/ manufacturer.

23. TEST REPORTS:

The Solar Water Heating Systems should have been successfully tested as per BIS/ MNRE Guidelines in approved test centre of MNRE. Except routine tests, latest test report of approved Test House in case of following tests is required along with the tender. Tenders without test report are liable for rejection without any further notice.

24 TYPE TESTS (As applicable)

- i) Outdoor no flow exposure test
- ii) Internal and External thermal shock test
- iii) Rain penetration test
- iv) Impact Resistance test
- v) Thermal efficiency test
- vi) Determination of time constant
- vii) Incident angle modifier test

In addition to above , test reports of offered design of collector / tubes and its components is also required for following tests.

- a) Transmittance test of cover plate
- b) Resistance to abrasion of collector box
- c) Temperature test of absorber
- d) Static pressure leakage test of riser and header.
- e) Thermal Shock test of Gaskets and grommets

25 Preventive & Routine Maintenance:-

This shall be done at least once in every six months and shall include activities such as cleaning of Solar Water Heating System, checking for any leakage, setting right of heat insulation and any other activity that may be required for proper functioning of the System as a whole at the cost of the firm. Proper record will be maintained by the firm on this account.

26 Breakdown and corrective maintenance:

Whenever a complaint is lodged by the user, the firm shall attend to the complaint within a reasonable period of time and in any case the breakdown shall be corrected within a period not exceeding ten days from the date of complaint.

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Annexure-I

TENDER FORM

- 1 Tender No:
- 2 Name of the work:
- 3 Last date and time of submission of the documents:
- 4 Amount of Earnest Money Deposit:
- 5 Date and time of opening of the tender:
- 6 Place of opening of the tender:
- 7 Name and status of firm/company
individual to whom the tender document
is issued :
- 8 Validity of tender

(Signature of Tenderer)
with designation

- All the columns must be filled by the tenderer.

Annexure II

GENERAL PARTICULARS OF THE TENDERER

1. Name of Tenderer:
2. Address for correspondence:
3. Telephone No. and Fax:
4. Name and Designation of the
Authorised Representative of the tenderer
to whom all the references shall
be made:
5. Amount and reference of E.M.D.
Deposited (Drawn on Bank & D.D. No.)
6. Financial capability of the contractor/
Firm for carrying out the work:
7. Has the firm ever been
debarred by any Govt. Deptt /Agency/organisation
for undertaking any work:
8. Details of offer (Mention No of pages):
9. Reference of any other information
attached by the tenderer:

(Signature of Tenderer)
with designation

EXPERIENCE OF THE TENDERER

Please fill in the information about the relevant project undertaken over the last three years for the work of Design, manufacture, supply, erection, testing and commissioning of ETC type Solar Water Heating Systems of 100 ,200,500, 1000 and 2000 LPD capacity .

1. Name of organization by whom work was awarded.
2. Name and location of the works.
3. Total amount of Contract.
4. Year of Award.
5. Detail of involvement in work as an individual or as a company.
6. Was the work completed satisfactorily and within the stipulated time period.
7. Particulars of evidence enclosed in token of above such as certificates from concerned utilities / beneficiaries.

(Signature of Tenderer)
with designation

DECLARATION BY THE TENDERER

I/We _____

(herein after referred to as the tenderer) being desirous of tendering for the work of design, manufacture, supply, erection, testing and commissioning of ETC type Solar Water Heating Systems of different capacities in H. P. with and without heat exchangers according to the latest BIS/MNES specifications at different places anywhere in H.P 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 documents, hereby declare that:-

- 1 The tenderer is fully aware of all the requirements of the tender documents and agrees with all the provisions of the tender documents.
 - a. The tenderer is capable of executing and completing the work as required in the tender.
 - b. The tenderer accepts all risks and responsibilities directly or indirectly connected with the performance of the tender.
 - c. The tenderer is financially solvent and sound to execute the tender.
 - d. The tenderer is sufficiently experienced and competent to perform the contract to the satisfaction of HIMURJA.
 - e. The information and statements submitted with the tender are true.
 - f. The tenderer has not been debarred from similar type of work by any Govt. Dept./Agency/Organization.
 - g. This offer will remain valid for acceptance for 12 months from the date of opening of the tender.
 - h. The tenderer gives the assurance to execute the tendered work as per the specifications, terms and conditions and in exact configuration of the sample submitted on award of the work.

(Signature of Tenderer)
With designation

DETAILED SPECIFICATIONS OF SWHS (ETC Type)

1 **ABSORBER**

The system must be approved by MNRE and performance test report be submitted along with Model No. and date of test.

2 **ASSEMBLY & WORKMANSHIP OF COLLECTOR :-**

Only Empanelled firms having valid test reports and empanelment certificates will be considered. All the components of heating systems will be of same makes as tested in test houses. The entire assembly shall be free from surface defects. All sharper edges and corners shall be rounded off. The exposed surfaces shall be properly made corrosion resistant. The air gap between the cover plate bottom and the absorber surface shall be within 20-40 mm. The insulation shall be provided in such a way that no slippage occurs from anywhere. This may be done by providing additional insulation under the header. The cover plate shall be fixed with the collector box through neoprene rubber/ EPDM rubber channels in order to protect the cover plate from damage. Provision shall also be made for the expansion of the glasses. The Solar collector shall be assembled so those replaceable components are accessible for repair or replacement at site in accordance with the manufacturer instructions. The Solar Collector should be tested for static pressure leakage test, outdoor no flow exposure test, thermal performance test in accordance with IS-12933 (Part-V)1992.

3 **GASKET FOR FLANGES:-**

3 mm thick gasket of neoprene/ silicon rubber shall be used for sealing the joints between flanges.

4. **COLLECTOR & HOT WATER TANK SUPPORT FRAME :-**

The structure should be in a position to withstand a wind velocity of 100 Km/Hr shall be made with MS angle of minimum size 35mmX35mmx5mm minimum with vertical support at top and bottom edge of the inclined plane of the collector & hot water tank at a distance of 1.5 M or less. The angle of the collector panels shall be suitably adjusted as per average latitude of Himachal Pradesh so as to optimum the transfer of heat from the solar radiation. The vertical supports shall be firmly grouted with the roof. The support frame shall be so designed so as to have arrangement for mounting 100/200 ltrs. Cold water tank above the hot water tank. Provision of any device meant to avoid calcification be made and detail be given in the bid.

5. **PAINTING OF STANDS:-**

Proper cleaning and degreasing of the surface should be done with the help of three in one solution before painting. Two coats of zinc chloromate, red oxide primer shall be applied followed by two coats of enamel paint of suitable colour. The colour be quoted.

6 **STORAGE TANK (HOT WATER)**

(a) **Material:-**

The tank shall be made preferably of stainless steel . The storage tank for 100/200 LPD capacity should be made of 20 SWG stainless steel only. Between 300 to 500 LPD capacity the storage tank should be made of stainless steel of thickness 18 SWG. For 1000LPD & above the thickness will be as per MNRE specifications.

- (b) **Insulation.**
150 mm thick insulation of 48 kg/cu m density having approximate value=0.028 to 0.033 W/mk and R values= 1.67 Sq.m.C./W to withstand a temp of 250 deg C. Thin polythene sheet shall be used as covering between the glass wool and the cladding sheet besides the retaining material such as chicken mesh etc.. Aluminum sheet of thickness 24 SWG shall be used for cladding the tank insulation.

7 **PIPING**

a) **Material:-**

Heavy duty ½” to 2” dia (B class) Galvanized Iron pipe (GI) ISI mark IS 1239 (Part-I):1990/ suitable composite pipe shall be used for piping.

b) **Insulation:-**

50 MM thick insulation of 48 Kg/cu m density and K value= 0.028 to 0.033 W/MK, R Value= 1.67 Sq.m C/W to withstand a temp of 250 deg C be used. Thin plastic sheet shall be used as covering between glasswool and aluminum cladding besides other retaining material like chicken mesh etc. 26 SWG thick aluminum sheet IS-737:1986 shall be used for cladding the insulated pipe.

8 **VALVES/NIPPLES/TEES/BENDS:-**

Gun metal valves ISI marked shall be used. Make of valves be quoted. One valve should be provided with each 100 LPD and 3 valves with 500LPD or more capacity systems. Nipples/tees and bends of ISI marked shall be used.

9 **INSTRUMENTATIONS:-**

Following instruments and accessories shall be supplied:-

Capacity	Gate Valves	SS TAP suitable for hot water	Temperature Gauge	Pipe Line	
				Cold water	Hot water
100 LPD	1	1	One per hot water tank	6 m	6m.
200 LPD	1	2		10m	10m
500 LPD	3	3		20m	20m
1,000 LPD	3	5		25m	25m
2,000 LPD	6	7		30m	30m

10. **COLD WATER TANK:-**

HDPE/LDPE material with gunmetal float valve (ISI marked).

11 **SYSTEM LAYOUT AND DESIGN:-**

The layout of the systems be submitted for approval in case of systems of more than 100 LPD capacity. The manufacturer should provide with each Solar Water Heating System an instruction manual containing the following information:-

- a) Installation instructions, including mounting details, handling recommendations and safely precautions. Maintenance instructions, for example cleaning of cover plate, painting (where applicable) etc.
- b) Collector recommended output capacities at temperature range from 60 °C to 80 °C for 20°C-inlet water temperature for a region.

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TECHNICAL PARAMETERS

Sr. No.	DESCRIPTION	SPECIFICATIONS
1	System capacity	
2	Detail of collectors / tubes(ETC type) <ul style="list-style-type: none"> (a) Name of manufacturer of tubes (b) Reference standard (c) Model No. (d) Number of tubes in 100 LPD system (e) Length. (f) Outer dia (g) Inner dia (h) Transmittance of cover glass tube (i) Transmittance of cover glass tube (j) Absorbance of glass tube (k) Angle of inclination (l) Level of vacuum, whether pressurized or not, operating pressure (m) Freezing resistance (n) Wind resistance (o) Hail proof (p) Emmissivity (q) Heating up coefficient (r) Material of reflectors of tubes and distance from tube 	
3	THERMAL PERFORMANCE <ul style="list-style-type: none"> a) Whether tested for thermal performance test b) Name of testing Institute. c) Date of test , whether report enclosed d) Average efficiency e) Maximum temperature rise in 24 hours 	
4	COATING <ul style="list-style-type: none"> a) Name & type of coating b) Coating emmissivity c) Absorber area. d) Transmittance of cover glass tube e) Reflectance of glass tube 	

	<ul style="list-style-type: none"> f) Reflectance of coating g) Absorbance of glass tube 	
5	<p>DETAIL OF INSULATING MATERIAL</p> <ul style="list-style-type: none"> a) Material b) Thickness of bottom insulation. c) Thickness of bottom insulation d) Thermal conductivity e) Density 	
6	<p>DETAILS OF COLLECTOR & HOT WATER TANK STANDS</p> <ul style="list-style-type: none"> (a) Material (b) Size (c) Details of protective coating 	
7	<p>DETAILS OF HOT WATER TANK</p> <ul style="list-style-type: none"> i. No. of tanks with capacity. ii. Material & size (Stainless steel) iii. Dimensions. Length/Dia <ul style="list-style-type: none"> i) 100 LPD ii) 200 LPD iii) 500 LPD iv) 1000 LPD v) 2000 LPD 	
8	<p>DETAILS OF INSULATING MATERIAL FOR HOT WATER TANK</p> <ul style="list-style-type: none"> (a) Type (b) Thermal conductivity (c) Density (d) Thickness. (e) Details of cladding material 	
9	<p>DETAILS OF CONTROL AND INDICATING INSTRUMENTS</p> <ul style="list-style-type: none"> (a) Specification & make of the temperature gauge. (b) Specification & make of the gate valve (c) Specification & make of the taps 	
10	<p>Specifications and details of the hot water piping with insulation and cladding material</p>	
11	<p>Specifications and details of the cold water piping.</p>	

12	<p>Details of Electrical Backup to be provided with make .</p> <p style="text-align: center;">i) 100 LPD ii) 200 LPD iii) 500 LPD iv) 1000 LPD v) 2000 LPD</p>	
13	<p>Detail of sacrificing anode or any other feature with dimensions for each Lot</p>	

Note:-

- 1) All tanks will be of stainless steel
- 2) Electric backup will be optional

(Signature of Tenderer)
With designation

PRICE BID

S No	Description	Remarks
1	Price Bid	Annexure A
2	Price break up	Annexure A-1
3	Additional works and spares	Annexure B

ANNEXURE A

FINANCIAL BID FOR SOLAR WATER HEATING SYSTEMS

S No.	Description	Rate in Rs. Without electric back up
1	FOR cost of Solar water Heating system (ETC TYPE) including supply, testing, transportation installation and commissioning as per MNRE / BIS specifications complete in all respects 100 LPD 200 LPD 500 LPD 1000 LPD 2000 LPD	

Note:-

- I. The rates will be FOR destination station including all applicable taxes, duties , Freight & Insurance charges, loading and unloading, erection, testing and commissioning charges.
- II. The quantity of instruments and accessories will be as per clause No. 16 of Annexure V.
- III. Cost of electrical back up may or may not be included for evaluation purpose. Cost of spares be quoted as per Annexure B, which may or may not be considered for evaluation.
- IV. Quoting of price in case of spares as per Annexure B is mandatory.

(Signature of Tenderer)
with designation

ANNEXURE B

COST OF SPARES AND ADDITIONAL WORKS

S No.	Description	Unit	Rate in RS	
			GI	Composite
1	Providing/fixing of Cold Water GI pipeline medium class/ corresponding suitable composite pipe including all accessories complete in all respect (Rates may be quoted separately for both). 1/2" 3/4" 1"	Rmt.		
2	Providing/fixing insulated Hot Water GI pipeline medium class/ corresponding suitable composite pipe including all accessories complete in all respect (Rates may be quoted separately for both). . . 1/2" 3/4" 1"	Rmt.		
3	Providing and fabrication of structure of Angle Iron of Size 50x50x5 35x35x5 25x25x5	KG		
4	Providing/fixing cold-water PVC/HDP tank of superior quality	Per Ltr.		
5	Supplying/Installation of wire mesh of appropriate size for monkey protection	Sq. Mtr.		
6	Supply/fixing of barbed wire	KG		
7	Providing/fixing SS Taps of superior quality ISI mark	Each		
8	Providing/fixing gate valves of superior quality ISI mark 1/2" 3/4" 1"	Each		
9	Providing/fixing float valve of superior quality ISI mark 1/2" 3/4" 1"	Each		
10	Grommet for sealing of collector box and header joint.	each		

(Signature of Tenderer)
with designation and in