

MEGHALAYA NON-CONVENTIONAL AND RURAL ENERGY DEVELOPMENT AGENCY

Near BSF Camp Mawpat, Shillong-793012.
Phone No.0364-2537343/2536138## Fax No.0364-2537611
E-Mail mnreda.dir@gmail.com ## Website www.mnreda.Gov.in

SHORT NOTICE INVITING TENDER

No.MNREDA/1394/2010-2011/P&C/299 :- Sealed Tenders are invited from the approved Manufacturer/Suppliers recognized by the Govt.of India, Ministry of New and Renewable Energy (MNRE for supply, installation and commissioning and maintenance for 5(five) years for 35 Nos. of 74 Wp SPV Street Lighting System to be installed at Nohwet Village, Nonsohphan village and Pomshutia village of Pynursla C & RD Block, East Khasi Hills District. Tender paper will be available from 6th December, 2013 onwards on payment of Rs.1000/- (Rupees one thousand) only by Demand Draft/cheque in favour of Member Secretary-cum-Director, Meghalaya Non-Conventional and Rural Energy Development Agency, Shillong. Offers can also be submitted by downloading of Tender Document subject to payment of the cost of tender papers before submitting of offer. The last date of submission of tender paper is on the 20th December, 2013, up to 12.00 hours and open of Technical Bid will be done on same day at 14.00 hours.

Member Secretary-cum-Director,
Meghalaya Non-Conventional and
Rural Energy Development Agency,
Shillong.

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TENDER DOCUMENT

Work No.MNREDA/1394/2010-2011/P&C/301

Name of Work : Supply, Installation, Commissioning and Maintenance for
5(five) Years for 35 Nos. of 74 Wp SPV Street Lighting
System to be installed at Nohwet, Nongsohphan, Pomshutia and
Pynursla C & RD Block, East Khasi Hills District.

Date of Issue of Tender : 06-12/2013 to 18-12-2013

Date of Submission of
Tender. : 20-12-2013 up to 12.00 hours.

Date of opening of Tender : 20-12-2013 at 14.00 hours.

Tender Issued to : _____

_____ against application vide letter No. _____

Dated _____ against payment of Rs.1000/- (Rupees one thousand) only vide Demand
Draft/Banker's cheque No. _____ dated _____ of Bank towards cost of
tender document (Non-refundable).

PART-A

**GENERAL TERMS AND CONDITIONS & SCOPE OF WORK WITH TECHNICAL
SPECIFICATION :-**

(Page No. 31 – 38)

PART-B.

BIDDING SCHEDULED

(Page No. 39 – 40)

Issued by :- _____

For : Member Secretary-cum-Director,
Meghalaya Non-Conventional and
Rural Energy Development Agency,
Shillong.

PART-A & B

I N D E X

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SHORT NOTICE INVITING TENDER

No. MNREDA/1394/2010-2011/P&C/300 :- Sealed Tenders with 20 (Twenty) days validity are invited from any authorized and approved MNRE Manufacturer/Supplier for the below work :-

Name of work : Supply, Installation, Commissioning and maintenance for 5(five) years for 35 Nos. of 74 Wp SPV Street Lighting System be installed at Nohwet, Nongsohphan and Pomshutia villages of Pynursla C & RD Block of East Khasi Hills District.

Time of completion : Within 30 (thirty) days

Cost of Tender paper/document : Rs.1000/- (Rupees one thousand) only.

Date of Issue of Tender : 06-12-2013 to 18.12.2013

Last date of submission : 20-12-2013 up to 12.00 hours

Date of opening : 20-12-2013 up to 14.00 hours

INSTRUCTIONS :-

- i) Cost of Tender paper or document should be in the form of Banker's cheque/Demand Draft (Non-refundable) drawn in favour of Member Secretary-cum-Director, Meghalaya Non-Conventional and Rural Energy Development Agency, Shillong.
- ii) While requesting for issuing of tender paper/document and application form in plain paper must be stated clearly work No.
- iii) Tender paper/document will be issued by courier/speed post on request but extra payment of Rs.200/- (Rupees two hundred should be made by demand draft in favour of the undersigned towards cost of speed post/courier.
- iv) Local Dealer of any Firm/Manufacturer/Supplier will be issued Tender paper but on furnish of their Dealership Certificate and tender paper issued will be in their Principle's name.
- v) In the event of postal delayed, the undersigned shall not be held responsible.
- vi) Tender paper/document shall be issued on any working day within the specified date.

- vii) Earnest Money deposit of either 1% for Scheduled Tribes and Backward classes & for General 2% as the case may should be accompany the offer.
- viii) Tenderer are to see by themselves that for each work No. nature of work are qualified or not, issuing of tender paper by the office to those non qualified firm/supplier/ manufacturer are not the responsibility of this office.
- ix) In case the opening date is declared as holiday, tender shall be opened in the next working day at the same time and hour.
- x) Tender document may be download from our website www.mnreda.Gov.in and bid may be submitted on downloaded but cost of tender shall have to be submitted before submission of tender.

The undersigned reserves the right not to accept the lowest tenderer and may reject any or all the tenderers without assigning any reasons whatsoever.

Sd/-
Member Secretary-cum-Director,
Meghalaya Non-Conventional and Rural
Energy Development Agency,
Shillong.

Memo.No.MNREDA/1394/2010-2011/P&C/300(a)

Dated Shillong, the 3rd December,2013.

Copy to :-

1. Additional Chief Secretary to the Govt. of Meghalaya,
Power Department.
2. Commissioner and Secretary, Power\
Govt.of Meghalaya.
3. Dr.G.Prasad, Director, MNRE, New Delhi.
4. Smti. R.M.Kurbah, MCS.
Director, Border Areas, Development, Meghalaya,Shillong.
5. The Deputy Commissioner, East Khasi Hills, Shillong.
6. The State Informatics Centre, Meghalaya, Shillong } With a request to display the NIT
In the tender document on the website
enclosed herewith both hard and soft copy.
7. Shri Rajashi S. Choudhury,
Assistant Manager, The Indian Express Ltd.
23, Dr. S.K.Buejan Road, Dighali Pukhuri (East)
Guwahati-781001. } With a request to publish in one issue of
financial express all edition. Editions, Mumbai/
Delhi/Kolkata/Chennai/Kochi/Bangalore/
Hyderabad/Pune/Chandigarh/Ahmedabad/
Gujarat/
8. Notice Board.

Sd/-
Member Secretary-cum-Director,
Meghalaya Non-Conventional and Rural
Energy Development Agency,
Shillong.

2. **SPECIAL CONDITIONS OF CONTRACT :-**

1. **Details of villages, locations and systems requirements :-**

Sl. No.	Name of village	Block	District	Systems requirements.
1.	Nohwet	Pynursla C & RD.	East Khasi Hills	35
2.	Nongsohphan			
3.	Pomshutia			
	Total			35

2.1.1 The Villages as indicated above at 2.1 may be liable to be changed but the No. of SPV-Home Lighting System and SPV Street Lighting System is fixed and intimation in this respect will be intimated prior to dispatching of equipments from factory.

2.2 **TENDER PROCESS:**

2.2.1 Tenderer are to furnish their offer in two seal cover envelope. 1st Envelope marked as“COMMERCIAL AND TECHNICAL BID” should enclosed alongwith. Part – A of Tender issued in original. And 2nd envelope marked as “FINANCIAL BID” should contain Part – B of Tender issued in original.

2.2.2 “**Technical Bid**” should contain only design of plant offer as per Technical Specification or requirement of Sec. 4 and related paper to Technical support. The Test Report domestic Home Lighting System and SPV Street Lighting System issued by any MNRE Authorization Test Centre issue after April, 2005 should be enclosed and attested by Authorized persons, VAT Registration, VAT Clearance Certificate upto 2012-2013, work experience or any other supporting paper.

2.2.3 “**Financial Bid**” should contain only EMD, and conditions and the Price Bid quoted on the tender Document as supplied by the Agency or in a separate Sheet but as per format supplied.

3. **General/Commercial Terms and Conditions:-**

- 3.1. **Signing of Tender Paper :-** The Tender Document as issued by Meghalaya Non-Conventional and Rural Energy Development Agency should be sealed and signed by the Authorized person of the Firm and it will be viewed as acceptance of every conditions containing therein.
- 3.2. **Attestation :** - All Xerox supporting papers which is not original should be duly attested by Gazetted officer of State/Central Govt.
- 3.3. **VAT/CST :-** VAT/CST Registration and VAT/VST clearance certificate up to March, 2013 should be furnished alongwith the Bid.
- 3.4. **Time of completion :-** The work should be completed within 30 (thirty) days from the date of issue of final work order.
- 3.5. **Supplier :-** The Supplier who are not the module Manufacturer are required to produce a letter from the Manufacturer of Module for commitment of supplying the Module without which offer will be rejected.
- 3.6. **Trading License :-** The successful bidder has to produce a Trading License from the proper authority, before starting the work at sites.
- 3.7. **Agreement :-** An Agreement has to be signed within 7(Seven) days of issue of final work order. The Agreement shall be prepared by the purchaser on a stamp paper duly signed by the authorize person of the firm and purchaser. The tender document as issued along with the Bid as submitted by the bidders along with supporting papers shall be part and parcel of the agreement. The maintenance contract agreement shall be separately signed on completion of installation and commissioning work of the system.
- 3.8. **Division of work :-** The work may be allotted to more than one party so as to enable to complete the work within the set target date by the Govt. of India, MNRE.
- 3.9. **Warranty :-** The system supplied should be warranted for a period of 2(two) years and after that maintenance of system should be 5(five) years after date of commissioning.

- 3.10. **Payment terms and conditions** :- The Bidders shall be entitled to the following payment terms:-
- a) **Mobilization Advance** :- The contractor shall be paid 30% (thirty percent) of value as Mobilization Advance against a Bank Guarantee of equivalent/like amount from any Nationalized Bank or scheduled valid for a period of 60(sixty) days from the date of acceptance of work. PSU's can submit identity indemnity bond for equal amount for a period of 60(sixty) days.
 - b) 40% (forty percent) of the contract value of the system/equipment shall be paid against receipt of materials at site in good conditions.
 - c) 20% (twenty percent) of the contract value of the system/equipment shall be paid on complete installation and commissioning.
 - d) Balance 10% (ten percent) to be paid at the end of 2(two) years of warranty period or against submission of Bank Guarantee valid for 2(two) years from the date of commissioning.
 - e) The Annual/Comprehensive contract payment shall be made on percentage of 30%, 30% and 40% at the end of 3rd, 4th and 5th year basis.
- 3.11. In the event of contractor not being able to supply or to carry out the work or a part of the work assigned to him in accordance with the terms of this contract, the purchaser shall have the right to recover any sums advanced from the contractor from his/its assets/amount due against performance Guarantee.
- 3.12. **Write up of system** :- The write up in English about the system functioning along with Block Diagram of installation of the system should be furnished along with the Bid.
- 3.13. **Eligibility criteria** :- MNRE, Govt. of India Channel Partners/PSUs along with the following credentials are eligible to participate the tender.

The Firm must have a minimum annual turnover of Rs. 50.0 lakhs in last three years(Please attach copy of audited balance sheet for 2010-2012, 2011-2012 and 2012-2013) (A summarized sheet turnover certified by registered CA should be compulsory enclosed).

The Firm must have designed, supplied, erected, commissioned minimum system of 74 Wp (cumulative over period of last three years) satisfactory report from previous installation in support of the same.

The Bidders are required to submit the detailed experience during the last 3(three) years of the work completed of the same system. A statement in this respect has to be compiled in a comprehensive form along with work orders and completion certificate. Due weightage will be given to PSO and who have experience in installation of Solar PV Street Lighting System of 74 Wp in rural villages in the State of Meghalaya and the North Eastern Region.

3.13. Standard Eligibility :-

- > Bidder's experience should supply, installation and commissioning (contracts executed, completed and handed over) of SPV street lighting system. Firms/company /PSU should have executed SPV street lighting system under SPV programme of MNRE only.

The products must conform to minimal requirements/standards for SPV street lighting system under SPV programme. (please attach copies of recent test certificate from SEC/other authorized Test Centres of MNRE, Govt.of India as proof thereof). The products/systems/devices quoted in tender should be as per MNRE specification.

- 3.14. Price Quoted :-** The price quoted as per the bidding scheduled i.e. cost of the system, transportation and commissioning and maintenance contract should be realistic and practical in nature and conform to the actual work to be done. Any figure which is not practically practicable, offer will be rejected.

3.15. Contractor to Inform himself fully :-

- a) The contractor shall be deemed to have carefully examined the general conditions, specifications and schedules and also to have satisfied himself as to the nature and character of the system and equipment to be supplied and installed under the contract, the site conditions and all relevant matter and details.

b) If he shall have any doubt as to the meaning of any portion of the contract/work order, he shall, before signing/accepting it, set forth the particulars thereof and submit them to the Director/Officer-in-charge in writing in order to remove such doubts.

3.16. **Financial soundness** :- Documentary evidence in support of financial soundness of the tenderer should be furnished.

3.17. **Submission of Bids** :- The submission of bids should be strictly in the following order:-

Tender paper as issued by the Agency with sign and seal by the Authorized persons of the firm.

Design and Technical Specification duly filled in as per tender document.

Experience in similar kind of works.

VAT/CST Registration and latest clearance certificate up to March, 2013.

Any deviation with justification thereof.

Price Bid should be in a separate envelope and can be quoted on plain paper but at should be in for format as given in the NIT.

Earnest Money Deposit

3.18. **Service Centre** :- It is mandatory that the manufacturer or Supplier should have a local service Centre/full time service Engineer/Technicians (minimum 3 persons). Full time Service Engineer/Technicians name contact no and address in the State of North East should be furnished along with the tender.

3.19. **Breach/cancellation of the contract** :-

a) In case of Non-Performance in any form or change of the convenient and conditions and conditions in this contract by the contractor, MNREDA shall have the power to annual, rescind, cancel or terminate the contract and upon its notifying in writing to the contractor that it has so done, this contract shall absolutely determine the decision of Meghalaya Non-Conventional and Rural Energy Development Agency in this regard shall be final and binding.

b) The purchaser may cancel the contract or a portion thereof and if so purchaser or authorized purchase of the system/equipment not so delivered or order system equipment of similar description (opinion of the purchaser shall be final) at the risk and cost of the contract. If the contract had defaulted in the performance of the original contract, the purchaser shall have the right to ignore his tender for risk purchaser even through lowest.

3.20. **Responsibility of the contractor :-**

The contractor shall guarantee and be entirely responsible for the execution of the contract in accordance with the specification, schedules and appendices. He shall further guarantee and be responsible for the quality and workmanship of all materials and completed works, correct design and drawings, correct delivery of materials erection, testing and commissioning within the guaranteed completion and warranty period of 5(five) years including 3(three) years maintenance and from the date of commissioning on completion of commissioning a separate agreement shall have to be signed in their respect for comprehensive maintenance contract.

3.21. **Tools and tackles :-**

The contractor shall provide all tools and tackles conforming to relevant BIS safety and technical standard for proper execution of work, Meghalaya Non-Conventional and Rural Energy Development Agency shall in no way, responsible for supply of any tools and tackles for implementation of work.

3.22. **Safety Measures :-**

The contractor shall have to undertake necessary measures for providing adequate safety and precautions to avoid any accident which may cause damage to any equipment/material or

injury to workmen, Meghalaya Non-Conventional and Rural Energy Development Agency shall not be responsible for any such accidents.

3.23. Stoppage of work :-

Meghalaya Non-Conventional and Rural Energy Development Agency shall not be responsible for any damage or loss caused due to “force majeure” conditions. The contractor shall make provision to make provision for adequate insurance cover against such loss or damages Meghalaya Non-Conventional and Rural Energy Development Agency shall not be responsible and not liable to pay any compensation due to stoppage of work as a reaction from local public due to any undue action. On the part of the contractor causing annoyance to local people.

3.24. Delivery of system :-

- i) The contractor shall deliver the systems in accordance with the terms of the contract at the time/times at the place/places and in the manner specified in the contract. The contractor shall comply with instructions that may be given by the purchaser from time to time regarding the transit of the system and material.
- ii) Notification of delivery or dispatch in regard to each and every consignment shall be made to the Purchaser immediately after dispatch or delivery. The contractor shall supply to the consignee invoice in duplicate and packing account of all stories or dispatch by him.
- iii) In case of any occurrence of loss or damage in transit up to destination, it shall be liability of the contractor to initiate or pursue the claim with Insurance company. He should take immediate steps to repair the damage apparatus or replacement thereto. Any extension of time limit required in such contingency will be considered by the purchaser on merit.

3.25. Arbitration :-

- i) Except where otherwise provided if anytime question dispute or difference whatever shall arise between the contractor and the purchaser upon or in the relation to or 1(one) connection with this contract either of the parties may give to other notice in writing of the existence of such a question on rejection of the matter, the dispute or difference shall be

referred to the sole arbitration appointed by Meghalaya Non-Conventional and Rural Energy Development Agency at the time of dispute after ascertaining the terms of reference mutually.

- ii) The Arbitrator will preferably be a member of Arbitrator Council and arbitration proceeding will take place as per provision of Arbitration Act 1940 or any statutory modification or reenactment thereof and the rules made there and for the time being in force shall apply.
- iii) The contractor will ensure that the work under this contract shall continue during arbitration proceeding and dispute and no payments due from or payment by the purchaser shall be withheld on account of such proceeding except to the extent which may in dispute.

3.26. **Rejection of Defective Systems :-**

- i) If the completed system or any portion thereof, before it is taken over found to be defective or fail to fulfill the requirements of its contract, the Director shall give to the contractor notice stating that the particulars of such defect good, or alter the same to make it comply with the requirements of the contract. If the contractor fails to do so within a reasonable time, the purchaser may reject and replace, at the cost of contractor, the whole or any portion of the system, as the requirement of the contract. Such replacement shall be carried out by the purchaser within a reasonable time and a reasonable price and where possible to the same specifications under competitive conditions. In case of such replacement by the purchaser the contractor shall be liable to pay to the purchaser the extra cost, if any of such replacement, be delivered and for erected as provided for in the contract agreement.
- ii) In the event of rejection, the purchaser shall be entitled to use of the plant in responsible and proper manner till a time reasonable sufficient to enable him to obtain other replacement system. During the period the rejected system is used commercially, the contractor shall be entitled to a reasonable sum as payment for such use provided that the decision of the Director in regard to quantum of such payment shall be final and binding on the contractor.

3.27. **Guarantee :-**

The guarantee period of the system will be 3(three) years from the month of the date of commissioning whereas for Modules the guarantee should be 10(ten) years/specified by the

Govt. of India, MNRE from time to time. The contractor shall remain liable to replace any defective parts that may develop in the system of his own manufacturer or that of his sub-contractors under the conditions provided for by the contract under proper use, and arising solely from faulty design, materials or workmanship provided always such defective parts as are not, repairable at site and are not essential in the meantime to the contractor's work at the expenses of the contractors unless otherwise arranged.

3.28. Annual/Comprehensive Maintenance Contract Period of Systems :-

- i) The contractor shall maintain and regularly check monthly or quarterly the systems for a period of 5(five) years from the date of commissioning.
- ii)The contractor will bear the cost of all consumable, spare parts and repairing expenses during AMC/CMC period.
- iii)The purchaser reserves the option at his discretion to request the contractor to continue the AMC/CMC of the system. The purchaser will bear the cost of replacement spare and service charges after AMC period over, on mutually agreed rates.
- iv)The contractor shall maintain performance data of the system and submit the same to Meghalaya Non-Conventional and Rural Energy Development Agency at least once in every month/quarterly.
- v)The deputed personnel shall be qualified and will trained so that they can handle any type of operational hazards quickly and timely. He should keep log sheets for the SPV street lighting system as per approved format to be supplied by Meghalaya Non-Conventional and Rural Energy Development Agency after commissioning of the system.
- vi)The deputed personnel shall be in position to check and test all the system regularly so that preventive maintenance and repair, if required, could be taken well in advance to save any system from damage.

3.29. Court of Competent Jurisdiction :-

The Courts of Gauhati High Court, Shillong Bench will only have jurisdiction in this case.

4. Standard scope of work and Technical Specification of SPV Street Lighting System :-

4.1. Each Solar PV Street Lighting System should consist of the following :-

Sl. NO.	Items Description	Quantity per unit
1.	Solar PV Modules	1 No.
2.	Frame of Module	1 No.
3.	Post of frame	1 No.
4.	Battery	1 No.
5.	Battery Box & locking	1 No.
6.	Fixture and luminaires	1 No.
7.	Controller & switches	1 No.

Connecting cable/wire/as per required.

Other requirements :-

- Installation & Commissioning
- Operation and Maintenance

4.2. Location of the site :

Location	Nohwet, Nongsohphan & Pomshutia village, Pynursla C & RD Block, East Khasi Hillsl.
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4.3. Scope of work :-

The following section of the document describes the scope of work for Solar PV street lighting system. This job involves design, supply, installation and commissioning and Annual/Comprehensive Maintenance for 5(five) years of the SPV street lighting system with.

The scope of work shall include the following :-

- Design, supply, installation, commissioning of Solar PV Street lighting system
- Performance testing of the complete system
- Warranty of the system as per MNRE

- Training of at least two persons on the various aspects of maintenance and operation of the offered street lighting system.
- The AMC/CMC for the system installed in these 3(three) Nos. of villages for 3(three) years after the end of the 2(two) years warranty period.

5. TECHNICAL SPECIFICATION/SYSTEM CONFIRGURATION FOR SOLAR STREET LIGHTING SYSTEM :

5.1. SOLAR PV MODULES :

- (i) Solar Module shall consist of redundantly interconnected 36 Photovoltaic cell and the peak power of 74 Wp under STC.
- (ii) SPV modules must be tested and certified by an independent testing laboratory that us accredited with ISO guide 25.
- (iii) Photo electrical conduction efficiency of SPV modules should be greater than 12% modules shall be made of high transitivity glass front surface giving high encapsulation gain and silicon rubber edge sealant for modules protection and mechanical support.

Modules shall perform satisfactorily in relative humidity upto 100% with temperature between 10^oc and 90^oc and to withstand a gust upto 200 Km/hr. from back side of the modules. Modules shall be of crystalline type employing lamination technology using established polymer and toddler laminate.

- (iv) The rated power output of modules shall not vary more than 5% from the average power rating.
- (v) A minimum warranty of 10 years is available with degradation of power generated not exceeding 10% over the entire 10 years period.
- (vi) The fill factor of modules shall not be less than 0.70.
- (vii) The module should be provided with a junction for provision of external screw terminal connection and with an arrangement for low voltage drop by bypass/blocking diode.
- (viii) Data sheet should be furnished as follows :-

- (a) Module type :-----
- (b) Module Dimension :-----
- (c) No of cell & Wattage :-----
- (d) Solar cell manufacturer type :-----
- (e) Make of solar module :-----

- (f) Solar Module frame material :-----
- (g) Nominal voltage :-----
- (h) Operating voltage of solar Module :-----
- (i) Peak power voltage(Vmp) at 50°C :-----
- (j) Peak power current(Imp) at 50°C :-----
- (k) Open circuit voltage(Voc) at 50°C :-----
- (l) Short circuit (Ioc) at 50°C :-----
- (m) Maximum temperature rise of
Solar cell under severe working
Conditions over maximum ambient
Temperature :-----
- (n) Operating temperature conditions :-----
of modules.
- (o) Weight of each module :-----

x) Photovoltaic modules should have a distinctive marked the name of manufacturer
Distinctive Logo, Model No. and serial No.

5.2. LAMPS :

- (a) The lamps will be of compact fluorescent (CFL) type either 4 pin/2 pin types with rating of 11W CFL For 4-pin type CFL, a suitable preheating circuit must be provided.
- (ii) The light output from lamps should be around 600+/- 5% lumens for 9 CFL and 900 +/- 5% lumen for 11 W CFL. No blackening or reduction in the lumen output by more than 10% should be observed after 1000 ON/OFF cycle (two minutes on followed by four minutes OFF in on cycle).
- (iii) The lamps should be housed in an assemble suitable for indoor use with a reflector on its back, while fixing assembly, the lamp should be held in a base up configuration.
- (iv) The details specification, make of lamp should be furnished by the firm/supplier.

5.3. BATTERY :

- (i) The battery will be of flooded electrolyte type, positive tubular plat low maintenance lead acid battery of Exide/equivalent make.
- (ii) The battery will have a minimum rating of 12V of 74 Ah at C/10 discharge rate depending on model.
- (iii) 75% of the rated capacity of the battery should be between fully charged and load cut off conditions.

- (iv) A vented metallic box with acid proof corrosion paint for housing the storage battery indoors should be provided.
- (v) Specification details and write up on battery should be furnished.

5.4. CHARGE CONTROLLER/ELECTRONICS :

- (i) The inverter should be quasi sine wave/sine wave type with frequency in the range of 20-30 Khz. Half wave operation not acceptable.
- (ii) The total electronic efficiency should be at least 80%.
- (iii) No blackening or reduction in the lumen output by more than 10% should be observed after 1000 ON/OFF Cycles (two minutes ON followed by four minutes OFF 1-one cycle)
- (iv) The ideal current consumption should not be more than 10 mA.
- (v) Electronics should operate at 12V and should have temperature compensation for proper charging of the battery throughout the year.
- (vi) Necessary lengths of wires/cables switches suitable for DC use and fuses should be provided.
- (vii) Adequate protection is to be incorporated under No load conditions i.e. when lamps are removed and the system is switch ON.
- (viii) The system should have protection against battery over charge and deep discharge conditions.
- (ix) Fuses should be provided to protect against short circuit conditions.
- (x) A Blocking diode, should be provided as part of the electronics. To prevent reverse flow of current of current through the PV module(s). In case such a diode is not provided with the solar module(s).

5.5. MECHANICAL HARDWARE :

- i) A metallic frame structure (with corrosion resistance pint) to be fixed on the pole to hold the SPV module(s). The frame structure should have provision to adjust its angle of inclination to the horizontal between 0 and 45. So that the module(s) can be oriented at the specified till angle.

- ii) The pole should be made of mild steel pipe with a height of 4.5 metres above the ground level, after grouting and final installation. The pole should have the provision to hold the weather proof lamp housing and the battery box and should be painted with a corrosion resistant paint.
- iii) A vented acid proof and corrosion resistant painted metallic box for outdoor use should be provided for housing the battery with proper locking arrangement system.

5.6. OTHER FEATURES :

- i) The system be provided with 2 LED indicators a green light to indicate charging in progress and a red LED to indicate deep discharge conditions of the battery. The green LED should glow only when the battery is actually being charged.
- ii) There will be a name plate on the system which will give :
 - (a) Name of the manufacturer of Distinctive Logo
 - (b) Serial number
- iv) Components and parts used in solar home systems should conform to the latest BIS specifications, wherever such specifications are available and applicable.
- v) The PV module(s) will be warranted for a minimum period of 10 years from the date of supply and the solar home system (including the battery) will be warranted for a period of two years from the date of supply.
- v) The warranty Card to be supplied with the system must contain the details of the system supplied. The manufacturers can also provide additional information about the system and conditions of warranty as necessary.
- (vi) An operation, instruction and maintenance manual in English should be provided with the solar home system. The following minimum details must be provided in the manual.
 - (a) About Photovoltaics
 - (b) About solar home system-its components and expected performance.
 - © About PV Module

- (d) About CFL
- (e) About Battery
- (f) Clear instruction about mounting of PV modules(s)
- (g) About electronics
- (h) About charging and significance of indicators
- (i) DO's and DON'T's
- (j) Clear instruction on regular maintenance and trouble shooting of solar home system.
- (k) Name and address of the person or service center to be contacted in case of failure or complaint.

6. **BASIC MINIMUM TECHNICAL SPECIFICATION OF 74Wp SPV STREET LIGHTING SYSTEM.**

Sl. No.	System Rating	74Wp SPV Street Lighting System
1.	MODULE	
	i) Type	Mono/Poly Srystalline Silicon
	ii) No. of Cell & Voltage	37 Cells of 2x37 Wp or 1x74 Wp
	iii) Make	As per test Report
	iv) Efficiency	More than 12%
	v) Maximum Watt	74 Wp
	vi) Operating Voltage	As per MNRE requirement
	vii) Sl. No. & Date	-
2.	LAMP	
	i) Make	As per Test Report
	ii) Power rating	11 WCFL
	iii) No. of pins	2 pins/4 pins
	iv) Light Output	900 \pm 5%
	v) No. of lamps	Luminaire for 11 Wp
3.	BATTERY	
	i) Make	As per Test Report
	ii) Type of Battery	Flooded Electrolyte load acid positive tabular plate low maintenance lead battery
	iii) Rated Capacity	12V, 74AH at C/10 discharge
	iv) Rated capacity between high & low cut off	75%
	v) Battery Box	Metallic
	vi) Write up details	Should furnish

4.	CHARGE CONTROLLER ELECTRONICS:	
	i) Wave form factor	Sine or Quasi sine waves
	ii) Crest Factor	<1.70
	iii) Frequency	20-35 KHZ
	iv) Efficiency	Minimum 80%
	v) Preheating arrangement required for 4 pins	Should furnish as per required
	Ideal current	<10mA
5.	PROTECTION:	
	i) No load protection	Should furnish as per required
	ii) Short circuit protection	-do-
	iii) Reverse polarity	-do-
	iv) Reverse flow protection	-do-
	v) Battery temperature	-do-
	vi) Low Voltage cut off	-do-
	vii) Load reconnect	-do-
	viii) Over charge cut off	-do-
	ix) Module reconnect	-do-
6.	MECHANICAL HARDWARE:	
	i) Type of Frame	MS Angle
	ii) Embedded Structure	Metallic
	iii) Angle inclination	0 – 45
	iv) Pole Street Lighting System	G.I/MS Pipe of 4.5. metres
7.	OTHER FEATURES:	
	i) Duty Cycle	12 Hours
	ii) Indicator	Should furnish as required
	iii) Switch & Cable	-do-
	iv) Marking on Lighting System	-do-
	v) Making on Module	-do-
	vi) Manual	-do-
	vii) Warranty	
	(a) Modules	10 years
	(b) System	2 years

7. **FORMAT FOR WARRANTY CARD TO BE SUPPLIED WITH STREET LIGHTING SYSTEM.**

1. Name and address of
Manufacturer/supplier of the system :
2. Name and address of the purchasing agencies :
3. Date of supply of the system :

4. Details of PV Module(s) supplied in the system
Make (Name of the Manufacturer) :

Model :
Serial No.(s) :
Wattage of the PV Module(s) under STC
Warranty valid upto :

5. Details of Battery :
Make (Name of the Manufacturer) :
Model :
Batch/Serial No.(s) :
Rated V & AH capacity at C/20/C/10 rate at 20C :
Warranty valid upto :

6. Details of Electronics and other BOS items

Make (Name of the Manufacturer) :
Model :
Serial No. (s) :
Warranty valid upto :

7. Designation and address of the person to be
Contacted for claiming warranty obligations :

8. **SPARE PARTS AND REPAIRING TOOLS AND KITS :**

The supplier shall provide spare required during warrantee period free of cost. Beyond warrantee period the supplier shall ensure that spare are made available to MNREDA at reasonable charges. Repairing tools and kits i.e. multimeter, screw driver sets, spanners etc. should be supplied for each system.

9. **PACKAGING, SHIPPING AND MARKING :**

The supplier shall be responsible for assuring that all commodities shipped are properly packed and protected to prevent damage or deterioration during shipment. Packaging and shipping cost shall be borne by the supplier. Customs clearance and all costs and actions associated with import duties taxes and processing of documents within India are borne by the bidder.

10. **INSTALLATION AND COMMISSIONING :**

- i) The offer should include provision for installation of the entire system.
- ii) The supplier is responsible for the supply of instrumentation required to commission and installation. The plant will be commissioned in the presences of authorized personnel or its nominated representatives. A commissioning protocol should be provided in the offer and an acceptance report will be prepared and signed by all participating parties.

11. **AFTER SALES SERVICE :**

The offer should include the terms and conditions for after sales service. The detailed content of the service proposed, and its duration should be clearly stated. Bidders having own/authorized service centers in Shillong or N.E. Region shall be given preference.

12. **TRAINING AND AFTER SALES SERVICE :**

Training and after sales service is an important component of supply. The terms and conditions for training and after sales supply and service are to be presented clearly in the bit and the extent and duration of after sales support clearly defined. An explanation of preventative maintenance schedule, plan of operation, scope and implementation of the sale service is to be defined.

13. **EXPERIENCE :**

Past project similar in nature :

A Comprehensive list of past projects implemented, by the bidder/bidder group company/collaborator in India or abroad, including clients, dates size of projects and any other relevant material should be included in the offer. Companies having experience in execution and operation of similar solar power plants shall be given preference.

14. **DOCUMENTATION :**

One set of installation manual/user manual shall be supplied along with the system. Assembly of the complete system shall be shown with computer aided design and drawing form. Step by step maintenance procedures shall be given in the manuals.

15. **GUARANTEE PERFORMANCE AGREEMENT :**

An agreement listed system and sub systems of the offer for each component Guarantee has to be signed between supplied and MNREDA along with the performance guarantee as listed in section 3.4.

16. **DEVIATION OF THE TENDER :**

In case of deviation the below format should be observes.

16.1. **General condition of contract :**

Sl. No.	Specification clause	Deviation by the tender	Justification by the tender.
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16.2. **Technical Specification of contract :**

Sl. No.	Specification clause	Deviation by the tender	Justification by the tender.
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17. **MARKING OF MNREDA NAME IN SOLAR PHOTOVOLTAIC MODULE :**

It is to be noted that in the distinctive logo of the firm in the Photovoltaic Module it is required to print also the name of the Purchaser marked as “MNREDA”. This is to avoid the frequent theft of modules.

18. It is to be noted that were submission of Test Report without providing of Technical Specification as required at section 4.2, 4.3 & 4.4, offer, will stands automatically rejected.

PART – B

TABLE OF CONTENTS

BIDDING SCHEDULED:

Sl. No.	Description	Quantity	Unit	Rate (Rs)	Amount (Rs)
A.	Cost of System				
1.	SPV Street Lighting System of 74 Wp 12V 75 AH as per Annexure	35	Nos/System		
B	Transportation				
C	Installation and Commissioning of System	3			
D.	AMC for 3 years				
	Total:				

(Rupees _____)only

Note: Annexure price of System should be indicated without which Bidding Scheduled will be treated as incomplete.

**Seal & Signed of Authorised
Person of the Firm**

ANNEXURE

5.2 DETAIL COST OF 74 WP SOLAR STRET LIGHT

Sl. No.	Description of Item	Quantity	Unit	Rate/Unit (Rs)	Amount (Rs)
1.	Supplying of 74 Wp Solar Photovoltaic Module	1	No.		
2.	Frame of Module	1	No.		
3.	Post of frame	1	No.		
4.	Battery	1	No.		
5.	Battery and battery rock	1	No.		
6.	Fixture & Luminier	1	No.		
7.	Controller & Switches	1	No.		
8.	Connecting cable/wire	L.S.	No.		
	Total ex-work cost of System				

(Rupees _____)
_____)only

**Seal & Signed of Authorised
Person of the Firm**