MEGHALAYA NON-CONVENTIONAL AND RURAL ENERGY DEVELOPMENT AGENCY

Near B.S.F. Camp, Mawpat, P.O. Mawpat, Shillong – 793 012
Phone No.0364-2537343/2536138#Fax No.0364-2537611s
E-Mail: mnreda.dir@gmail.com Website: www.mnreda.gov.in

NOTICE INVITING TENDER

For

Supply, Installation and Commissioning of Solar Street Lighting Systems (SSLS) LED at different locations in the state of Meghalaya.

For the Financial Year 2013-14

MEGHALAYA NON-CONVENTIONAL AND

RURAL ENERGY DEVELOPMENT AGENCY

Near B.S.F. Camp, Mawpat, P.O. Mawpat, Shillong – 793 012
Phone No.0364-2537343/2536138#Fax No.0364-2537611
E-Mail: mnreda.dir@gmail.com Website: www.mnreda.gov.in

NIT No.: MNREDA/1622/2014/5 Dated: Shillong, the 5th December,2014

Tender Document for Supply, Installation & Commissioning of 170 nos. LED based Solar Street Lighting Systems at different districts/locations in the state of Meghalaya .

Tender document issued to M/S _____

_____

_____

against application vide letter No. _____

dated _____ and against payment of Rs. 7,000/- (Rupees seven thousand) only vide Cash/Bank Draft No. _____ dated _____ of _____ Bank towards the cost of Tender Document Part – A and Part – B.

Issued By :
For Member Secretary Cum Director
Meghalaya Non-Conventional & Rural
Energy Development Agency

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PART – A

Commercial & Technical Bid

CONTENTS

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NOTICE INVITING TENDER

No. MNREDA/1622/2014/5 Dated: Shillong, the 5th December,2014

Sealed Tenders are invited for Supply, Installation & Commissioning of 170 Nos. LED Based Solar Street Lighting Systems (SSLS) complete with PV modules, luminaire (Lighting system with electronics) from indigenous, reputed, experienced and financially capable manufacturers only who indigenously manufacture one or more major sub-systems of SPV Street Lighting systems. i.e. (1) PV modules (2) Luminaire (Lighting system with electronics)and they must have adequate facilities for testing of the SPV system at their worksite.

It is mandatory for Manufacturers/Suppliers to have valid confirmation of SEC/OATCs of MNRE, as required, issued for latest specification during 2012-2013, 2013-2014 duly certified by SEC/OATCs of MNRE .

Tender document/paper will be issued or downloading from website of MNREDA with effect from **05-12-2014** to **19-12-2014** on payment of Tender cost of Rs. 7,000/- (Rupees Seven thousand) only either by cash or Bank Draft drawn in favor of Director cum Member Secretary, MNREDA, Shillong.

Last date of submission of bids is on **19-12-2014** at **12:30 PM** and Commercial and Technical Bids will be opened on the same date at **3:00PM.**

Tender document shall be issued on any working day within the specified date.

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

Memo. NO.MNREDA/1622/2014/5-A Dated Shillong, the 5th December, 2014.

Copy to :-

1. The Additional Chief Secretary, to the Govt.of Meghalaya, Power Department.

2. The State Informatic Officer, National Informatics Centre Meghalaya, Shillong. — With a request to display the NIT & Tender Document on the website enclosed herewith. Both hard & Soft copy.

3. M/s. Eastern Chronicale Shillong. — With a request to publish in one issue of your newspaper and to be submitted the bill in duplicate along with sample of Advertisement for necessary payment.

4. Notice Board. MNREDA, Shillong.

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

INSTRUCTION TO THETENDERER

1. Minimum Criterion for Bidding:

The offer of Tenderers for supply, installation and commissioning of LED based Solar street lighting systems (SSLS) shall be considered subject to their meeting the minimum eligibility conditions as given below:

(i) The Tenderers should be indigenous manufacturer of atleast one of the major items used in a solar street lighting system (SSLS) LED (a) PV modules (b) Luminaire (Lighting system with electronics). They should have adequate facilities for testing of the Street Lighting Systems LED at the worksite.

(ii) The Tenderers should confirm the SEC/OATCS of MNRE, whichever of such specifications are available and applicable.

(iii) The Tenderers should have supplied, installed and commissioned a minimum quantity of 200 nos. of any approved type of Street Lighting Systems during the last three financial year and these should have performed satisfactorily. Certificate issued by the concerned State Nodal Agencies/ Organizations must be furnished.

(iv) The Tenderers having work experience of the same in the state of Meghalaya should be given preference.

(v) The Tenderers should have ISO 9008 and ISO 14001 Certificate.

(vi) The Tenderers must have adequate service network for maintenance of the system in the North-Eastern region.

(vii) Companies which only assemble the Solar Street Lighting Systems and who are only authorized dealer are **not eligible** for this tender.

(viii) The bidders should have minimum turnover of atleast 4 Crores in the last 3 (three) financial years.

(ix) Technical specifications as per the format (**Annexure 1**) should be duly filled up by the bidders without which Tender will be rejected.

Non-submission of above documents may result in rejection of bid.

2. Tender Document

In addition to this Tender document, any other documents/ instructions/ amendments/ revisions issued by MNREDA to the bidder till the due date of opening of the bid shall also be deemed to be integral part of the bid document. Failures to furnish all the information as per the bid document in every respect result in rejection of bid.

3. Cost of Tender Document

3.1 Tender document can be purchased from MNREDA office on payment of Tender cost of Rs. 7,000/- (Rupees seven thousand) only either by cash or Bank Draft drawn in favour of Director cum Member Secretary, MNREDA, Shillong.

3.2 Bidders may also download the bid document from MNREDA website and submit the cost of the bid document of requisite value in the form of Demand Draft along with Part – I (Technical Bid).

Non-submission of Cost of Tender document may result in rejection of bid

4. Earnest Money: -

4.1 Earnest Money Deposit of 1% for Schedule Tribe and Scheduled Caste and backward classes and 2% for general on the amount quoted in the form of Bank Guarantee/Call Deposit/FDR from any Scheduled or Nationalized bank of India pledged in favour of Director cum Member Secretary, MNREDA, Shillong should be furnished without which Tenders will be rejected.

4.2 The Manufacturer or Supplier who claim exemption shall have to produce a relevant paper from the proper authority i.e. NSIC certificate etc.

5. Submission of Bid

5.1 Commercial & Technical Bid:

i. Tender Paper (Part – "A") duly signed and seal by the Authorized persons of the firm.
ii. Cost of Tender document
iii. Technical Specification duly filled in as per tender document (Aneexure-1)
iv. Documents required under **Minimum Criterion for Bidding.**
v. VAT registration copy and VAT clearance certificate.

vi. Documentary evidence in support of Financial Soundness of the tenderer.
vii. Any deviation with justification thereof.
viii. Any Other.
ix. If the bidder Tie up with Module manufacturer or Battery manufacturer, Agreement of Tie up should be produced.

5.2 Financial Bid:

i. Tender Paper (Part – "B") duly signed and seal by the Authorized persons of the firm.
ii. Price Bid can be quoted on plain paper but it should be in the format given.
iii. Earnest Money Deposit (EMD)

5.3 Part –A should be sealed in a separate envelope marked as "Commercial & Technical Bid" and Part – B should be sealed in a separate envelope marked as "Financial Bid".

5.4 Part –A (Commercial & Technical Bid)should not contain price of any items. Such cases, even if found anywhere, shall not be given any cognizance.

5.5 Part – B (Financial Bid) should not contain any technical matter or other matter except price & EMD. The date of opening of the price bid will be notified after opening of Technical bid evaluation.

5.6 Part – A and Part – B envelop should be sealed in a third envelop marked as "Offer for Solar Street Lighting System, NIT No., Date of opening of Part – A, Name & Address of the bidding firm and should be addressed to Director, Meghalaya Non-Conventional And Rural Energy Development Agency, Near B.S.F. Camp, Mawpat, P.O. Mawpat, Shillong – 793 012.

6. Opening of Financial Bid

Date of opening of Financial Bid shall be intimated individually to that firm who is qualified for Commercial and Technical offer.

7. Rate Quoted

The rate should be legible written in English both in figure and in words. In case of any contradictions between the prices mentioned in figures and words, the prices mentioned in words shall be considered final. Also, in case of any arithmetical error in regard to the total amount and individual rates, the individual rates shall be taken as final and the total amount shall be adjusted accordingly.

8. Price Quoted

The price quoted should be firm and as per the format provided in the tender document. No price variation will be allowed in case of variation of raw materials cost, transportation, etc.

9. Additional Information

Any other particular information, which are required to be furnished as per detailed tender papers but which have not been specifically indicated.

10. Deviation

Any deviations to the terms and conditions stipulated in detailed tender papers including payment terms etc. must be clearly specify if there is any deviation with justification.

11. Postal

No postal transaction shall be entertained for obtaining bid documents.

12. Other Terms & Conditions

12.1 Insertion, post-script, addition and alteration shall not be recognized unless confirmed by bidder's signature and stamp.

12.2 Incomplete tender or tenders not submitted as per requirement as indicated in the NIT are likely to be rejected.

12.3 Bidders shall submit their offer strictly as per terms and conditions of the tender document without any deviation.

12.4 Failure to furnish all information and documentary evidence as stipulated in the bid document or submission of an offer that is not substantially responsive to the bid document in all respects shall be summarily rejected.

12.5 All bids will be received in duly sealed cover within the due date and time. Bids received after the due date and time is liable for outright rejection.

12.6 Director, MNREDA reserves the right to reject part or whole of the bid/order and also distribute the order without assigning any reason thereof, postpone the date of receipt and opening of the bids or cancel the bid without bearing any liability, whatsoever, consequent upon such decision.

12.7 Issuance of bid documents shall not construe that the bidders would be automatically considered qualified.

GENERAL TERMS & CONDITIONS

1. **Signing of Tender Paper**

The Tender Document as issued by MNREDA should be sealed and signed by the Authorized person of the firm and it will be view as acceptance of each and every conditions containing therein.

2. **Attestation**

All supporting papers (photocopies) which are not in original should be duly attested by the gazetted officer.

3. **Sample**

A sample of Street Lighting System having valid SEC/OATCs of MNRE confirmation certificate of latest specifications from authorized centre or any other approved testing centre (OATCs) tested during 2013-2014 are eligible for supply under this tender must be submitted along with the offer documents in whole set**(except poles)** such as Solar street lighting systems (SSLS) LED in all respects. Supply of indigenous manufactured SPV system will be accepted under this tender. The price part (Part-B) of the Tenderers who do not submit samples at the time of opening of technical and commercial part (Part-A) will not be opened and **Tender will be outright rejected**. The extension of time for submitting sample will not be allowed. The sample of unsuccessful bidders will be returned within a reasonable period of time.

4. **Time of Completion**

The work shall be completed within 90 (Ninety) days from the date of issue of final work order.

5. **Agreement**

An Agreement has to be signed within 15(Fifteen) 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 maintenance contract agreement shall be separately signed on completion of installation and commissioning work of the system.

6. **Warranty**

The System supplied should be guarantee for a period of 2 years and the Module should be warranted for a period of 10 years. The Warranty period is from the date of complete of Installation and Commissioning of the System.

7. **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) on equipment cost as mobilization advance against a Bank Guarantee of equivalent / like amount from any Nationalized Bank or Scheduled Bank valid for a period of 180 (One Hundred Eighty) days from the date of acceptance of work.

(b) 40% (forty percent) of the contract value of the plant/equipment shall be paid against receipt of materials at site in good conditions.

(c) 20% (twenty percent) of the contract value of the plant/equipment along with other payments 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 of equivalent/like amount valid for a period of two years from the date of Commissioning.

(e) The Annual/comprehensive maintenance contract payment shall be made on percentage of 30%, 30% and 40% at the end of 3rd, 4th and 5th years basis.

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 form the contractor from his/its assets/amount submitted as mobilization advance.

8. **Validity of Offer**

The Tenderers should specify the validity period of their offer, which in no case should be not less than for a minimum period of 12(twelve) months from the date of opening of the Tender.

9. **Subletting of Contract**

The Contractor shall not without the prior consent in writing of the Purchaser, assign or sublet or transfer his contract, or a substantial part thereof other than raw materials or for any part of the work of which makers are named in the contract provided that any such consent shall not relieved the contractor from any obligation duty or responsibility under the contract.

10. **Contractor to Inform Himself Fully**

(a) The Contractor shall be deemed to have carefully examined the general conditions, specification and Schedules and also to have satisfied himself as to the nature and character of the plant and equipment to be supplied and installed under the contract, the site conditions and all relevant matter and detailed.

(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 concerned Project Officer in charge in writing in order to remove such doubts.

11. **Service Center**

It is mandatory that the bidder should have a local service centre in the state and preference will be given to those Firms who have the service centre in the State.

12. **Cancellation of Tender/Order**

Director, MNREDA reserves the right to reject in part or full the awarded contract without assigning any reason of those Manufacturers/Suppliers which will be found defaulter for delayed supply or supply of substandard materials.

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

13. **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 designs drawings, correct delivery of materials within the warranty period from the date of installation and commissioning on completion of installation and commissioning a separate agreement shall have to be signed in their respect for Annual maintenance contract (AMC).

14. **Training Programme/ After Sales Service and Availability of Spares.**

(i) The responsibility of organizing training programme for Solar Street Lighting System (SSLS) will rest on the Tenderers. The Training programme will be organized in consultation with Director,MNREDA.The Training programme will focus on operation and maintenance of Solar Street Lighting System. Printed leaflet/literature should be made available in English by the Tenderers regarding the operation and maintenance of their Solar Street Lighting System. The manufacturer will also ensure after sales service and availability of spares.

(ii) An Operation and Maintenance manual, in English should be provide with the Solar street lighting system.

15. **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. MNREDA shall not responsible for any such accidents.

16. **Delivery of System**

(a) The contractor shall deliver the plant/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 plant and material.

(b) 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 stores delivered or dispatch by him.

(c) In case of any occurrence of loss or damage in transit upto destination, it shall be liability of the contractor or initiate or pursue the claim with Insurance Company. He should take immediate steps to repair the damaged apparatus or replacement thereto. Any extension of time limit required in such contingency will be considered by the purchaser on merit.

(d) The list of locations would not be handed over to the bidder in advance. On arrival of the materials in full at MNREDA Head Office or at District Headquarters, the schedule for installation and commissioning of the systems will be finalized and list of locations will be handed over to the supplier for taking up the installation work.

17. **Court of Competent Jurisdiction**

The Court of Shillong only will have jurisdiction in the event of any dispute between the parties.

SCOPE OF WORK & TECHNICAL SPECIFICATION

Street Lighting Sytems:

For this Tender a standalone Solar Photovoltaic Street Lighting System is an outdoor lighting unit used for illuminating a street or an open area. The Solar Street Street Light System consists of Solar Photovoltaic (SPV) module, a luminaire , storage battery, control electronics, interconnecting wires/cables, module mounting pole including hardware and battery box. The luminaire is based on white LED (W-LED). The luminaire is mounted on the pole at a suitable angle to maximize illumination on the ground. The PV module is placed at the top of the pole at an angle facing south so that it receives solar radiation throughout the day without any shadow falling on it. A battery is placed in a box attached the the pole.

Electricity generated by the PV modules charges the battery during the day time which powers the luminaire from dusk to down. The system lights at dusk and switches off at dawn automatically.

Scope of work:

The Scope of Work shall include the following:

a) Supply, Installation and Commissioning of Solar Street Lighting System
b) Detailed planning of smooth execution of the project
c) Performance testing of the complete system
d) Warranty of the system for 2 year faultless operation. & 3 years operation & maintenance
e) After sales service

Technical Specifications:

The minimum requirement of MNREDA of performance for Solar Street Lighting Systems is as follows:

	11 watt W-LED
1.PV Module	50 Wp under STC
2.Battery	Tubular cell sealed maintenance free VRLA(GEL), 12V-40 AH @C/10/Solar (Lead Acid)12V-40 AH @ C/10
3.Light Source	White Light emitting diode (W-LED) total wattage – 11W. Using LEDs which emits ultra-violet light will not be permitted.
4.Light Output	Minimum 15 Lux when measured at the periphery of 4 meter diameter from a height of 4 meter.
5.Mounting of Light	Minimum 5 meter pole mounted above ground level
6.Elctronics Efficiency	Minimum 85% Total
7.Charge Controller	PWM/MPPT Type
8.Duty Circle	Dusk to Dawn
9.Anatomy	3 days

TECHNICAL DETAILS –

PV MODULE

i) Indigenously manufactured PV module should be used.

ii) The PV Module should have crystalline silicon solar cells and must have a certificate of testing conforming to IEC 61215 Edition II/BIS 14286 from an NABL or IECQ accredited Laboratory. In case the certificate for the offered module is not available, a test certificate for higher capacity module produced by the same PV module manufacturer should be available.

iii) The power output of the module(s) under STC should be a minimum of 50 Wp at a load voltage* of 16.4 $\pm$ 0.2V.

iv) The open circuit voltage* of the PV Modules under STC should be at least 21.0 Volts for 40/60 Wp.. The fill factor for the module should be more than 70%.

v) The module efficiency should not be less than 16%.

vi) The terminal box on the module should have a provision for opening it for replacing the cable, if required.

vii) The PV Module must use a RF Identification tag (RFID), which must contain the following information :

i) Name of the manufacturer of PV Module

ii) Model or Type Number

iii) Seiral Number

iv) Month and year of the manufacture

v) I-V curve for the module

vi) Peak wattage of the module at 16.4 Volts.

vii) Im, Vm and FF for the module

viii) Unique Serial No. and Model No. of the Module

From 1st April 2013 onwards RFID shall be mandatorily placed inside the module laminate.

ix) A distinctive serial number starting with NSM will be engraved on the frame of the module or screen printed on the tedlar sheet of the module.

* The load voltage and Voc conditions of the PV modules are not applicable for the system having MPPT based charge controller.

BATTERY

i) Lead acid, tubular positive plate flooded electrolyte or Gel/VRLA Type.
ii) The battery will have a minimum rating 12V, 50 Ah/12V, at C/10 discharge rate.
iii) 80% of the rated capacity of the battery should be between fully charged and load cut off conditions.
iv) Battery should conform to the latest BIS/International Standards.

LIGHT SOURCE

i) The lamp should be W-LED/compact fluorescent lamp (CFL) with 4 pins along with proper pre-heating circuit.
ii) The light output from the CFL based lamps should be around 900 $\pm$ 5% lumens for 11 watt & around 1800 $\pm$ 5% lumens for 11 watt and around 2600 $\pm$ 5% lumens for 22 watts. The color temperature of white LED used in the system should be in the range of 5500 K- 6500 K.
iii) The lamp should be housed in an assembly suitable for outdoor use, with a reflector on its back. 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 is one cycle.
iv) The minimum lifetime for the light source must more than 50000 hours. The temperature of heat sink should not increase more than 20C above ambient temperature during the dusk to dawn operation.

ELECTRONICS

i) The total electronic efficiency should be at least 85%.

ii) The inverter should be of quasi sine wave/sine wave type, with frequency in the range of 20-30 KHz.

iii) Electronics should operate at 12V and should have temperature compensation for proper charging of the battery throughout the year.

iv) The idle current consumption should be less than 20 m A.

v) The PV module itself should be used to sense the ambient light level for Automatic switching ON and OFF the lamp.

vi) The PCB containing the electronics should be capable of solder free installation and replacement.

vii) Necessary lengths of wires/cables, switches suitable for DC use and fuses should be provided.

viii) The light output should remain constant with variation in the battery voltages.

CHARGE CONTROLLER:

The unit should have the following feature :-

i) This unit should be designed for charge regulation of storage battery and safe guard the battery against over charge and deep discharging.

ii) The voltage cut-off should be set in such a way to utilize the 80% of the fully charged battery capacity.

iii) The lower limit of cut off voltage should not be less than 10.8 volts (12V)

iv) The charge controller should reconnect the load when battery gets fully charged. The difference in these two voltage set point should be neither too small nor too large to avoid the relay chattering.

v) A reverse blocking diode should be provided to prevent discharge of battery in rainy season and in night.

vi) The various functions should be displayed through LED indicator indicating the operations being carried out by the controller such as load current off (red) battery charging (green).

vii) The indicator should be fixed on front side of the battery box/luminary

viii) A switch & fuse should be provided with the controller

ix) The Unit should have protection against short circuit, lightening, reverse polarity surge etc.

x) The PCB's of controller should be glass epoxy

xi) All the connector indication should be covered with transparent hard plastic sheet screened properly.

xii) Must be of IP65.

ELECTRONIC PROTECTIONS :

i) Adequate protection is to be incorporated under "No Load " conditions e.g. when the lamp is removed and the system is switched ON.

ii) The system should have protection against battery overcharge and deep discharge conditions.

iii) Fuse should be provided to protect against short circuit conditions

iv) Protection for reverse flow of current through the PV module (s) should be provided.

v) Electronics should have temperature compensation for proper charging of the battery throughout the year.

vi) Adequate protection should be provided against battery reverse polarity.

vii) Load reconnect should be provided at 80% of the battery capacity status.

MECHANICAL COMPONENTS :

i) A corrosion resistant metallic frame structure should be fixed on the pole to hold the SPV module. The SPV module should be fixed on the pole. The frame structure should have provision to adjust its angle of inclination to the horizontal between 0 and 45, so that the module can be oriented at the specified tilt angle.

ii) The pole should be made of Galvanized Iron (GI) pipe. The Pole should be of GI pipe (B Class) of at leat 3 mm thickness * outer diameter of at least 75 mm. it must be of dimension & capacity to withstand the total weight of the module, battery and lighting structure. The steel tower/pole should be of suitable thickness to withstand almost 150 Km/hour of wind speed for street lighting system.

iii) The height of the pole should be at least 5 meters above the ground level, after grouting and final installation. The mounting pole should be grouted at least 1 meter below ground with M25 grade RCC having specified IS code reinforcement to provide required strength.

iv) The pole should have the provision to hold the luminaire.

v) The lamp housing should be water proof and should be painted with a corrosion resistant paint.

vi) A vented metallic box, with acid proof and corrosion resistant paint with a locking arrangement for outdoor use should be provided for housing the storage battery. The quality should be of high standard to withstand the life period.

INDICATORS :

The system should have two indicators, green and red. The green indicator should indicate the charging under progress and should glow only when the charging is taking place. It should stop glowing when the battery is fully charged. Red indicator should indicate the battery "Load Cut Off" condition.

QUALITY AND WARRANTY :

i) All the components and parts used in the solar street lighting systems should conform to the latest BIS or IEC specifications, wherever such specifications are available and applicable.

ii) The solar street lighting system including the battery will be warranted for a period of five years from the date of supply.

iii) The PV module(s) will be warranted for a minimum period of 25 years from the date of supply. The PV modules must be warranted for their output peak watt capacity, which should not be less than 90% at the end of ten (10) years and 80% at the end of twenty five (25) years.

iv) The warranty Card to be supplied with the system must contain the details of the system.

OPERATION AND MAINTENANCE MANUAL :

An operation, instruction and Maintenance Manual in English should be provided with the solar street lighting system. The following minimum details must be provided in the Manual:

- Basic principles of Photovoltaics
- A small write-up (with a block diagram) on solar street lighting system – its components, PV module, battery, electronics and luminaire and expected performance.
- Type, Model Number, voltage and capacity of the battery, used in the system.
- To make and wattage of the CFL/W-LED used in the lighting system.
- About charging and significance of indicators
- Clear instructions about erection of pole and mounting of PV module(s) and lamp housing assembly on the pole.
- Clear instructions on regular maintenance and trouble shooting of the solar street lighting system.
- DO's and DON'T's
- Name and address of the contact person for repair and maintenance, in case of non-functionality of the solar street lighting system.

ANNEXURE – I

GENERAL TECHNICAL PARTICULARS

(To be furnished by the Bidder)

1. SPV MODULE

i) Make
ii) Reference Standard
iii) Power output
iv) No. of solar cells
v) Operating voltage
vi) Open circuit voltage
vii) Average hour of operation per day
viii) Whether following:
Inscribed/laminated
a) Name of manufacturer
b) Model no.
c) Serial no.
d) Year of Manufacture
e) Supply order no.

2. LAMPS

i) Type
ii) Make
iii) Rating (wattage)
iv) Light output in lumens
v) Type of luminaries
vi) Reference standard

3. BATTERY

i) Type
ii) Reference standard
iii) Type of plate
iv) Make
v) Minimum rating
vi) Discharge rate

4. ELECTRONICS

i) Type of inverter
ii) Make of inverter
iii) Range of frequency
iv) Electronic efficiency
v) Idle current type of wire for connection
&Current rating of wire
Ambient light level of sensing
Switch on and off
vi) Type of Protection provided
a) No load current
b) Battery over voltage
c) Reverse flow of current
d) Open circuit current/voltage
e) Short circuit current
f) Reverse voltage
g) Temperature limit
h) Whether circuit diagram with detail of parts provided

5. MECHANICAL COMPONENTS

i) Type of structure
ii) Whether drawing enclosed
iii) Whether provision for adjustment of angle
iv) Size of angle iron used in the structure
v) Type of enclosure for battery
a) If metallic, thickness of sheet and total weight
b) If plastic, whether UV ray protected &moulded
vi) Weight of Structure
vii) Whether painted with corrosion resistant paint
viii) Type of pole
ix) Height and weight of pole
x) Thickness and class of pipe of pole
xi) Whether galvanized/painted

6. MISCELLANEOUS

i) No. of LED indicators for charging and deep charging and deep charging
ii)Whether name plate provided indicating
Name of Manufacturer/ distinctive logo,
S No. and supply order no.

iii) Whether sample of warranty card enclosed
iv) Whether sample of manual for operation and maintenance enclosed
v) Test facilities available at the works
vi) Whether sample of manual for operation and maintenance enclose
vii) Whether sample of sample enclosed

Date: **Signature of Bidder &Seal**

MEGHALAYA NON-CONVENTIONAL AND
RURAL ENERGY DEVELOPMENT AGENCY
Near B.S.F. Camp, Mawpat, P.O. Mawpat, Shillong – 793 012
Phone No.0364-2537343/2536138#Fax No.0364-2537611
E-Mail: mnreda.dir@gmail.com Website: www.mnreda.gov.in

PART – B

Financial Bid

PART -B

BIDDING SCHEDULE:

Sl. No.	Item	Unit	Quantity	Rate (in Rs.)	Amount (In Rs.)
1.	Supply of 11Wp SPV Street Lighting System with 50 Wp SPV module; 12 volt, 40 Ah Battery; Pole, battery box, etc. complete system FOR Shillong.				
2.	Local transportation per system				
3.	Installation and commissioning at different locations in the state of Meghalaya.				
4.	AMC for 3 years after the expiry of warranty period per system.				
	Total				

(Rupees……
……) only.

Note : 1 Above quoted price are complete in all respect as per Technical Specifications inclusive of all Central/State/Local taxes & duties, packing, forwarding, transit insurance, loading & unloading, transportation & other charges etc.

2. Certified that rates quoted are as per specifications, terms & conditions mentioned in the bid document.

Date: **Signature of Tenderer with Company seal**