

**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](mailto:mnreda.dir@gmail.com) Website: [www.mnreda.gov.in](http://www.mnreda.gov.in)

**TENDER DOCUMENT**

FOR ELECTRIFICATION OF 42 REMOTE VILLAGES IN  
MEGHALAYA BY DESIGN, SUPPLY, INSTALLATION AND  
COMMISSIONING INCLUDING COMPREHENSIVE  
MAINTENANCE CONTRACT (CMC) FOR 5 (FIVE) YEARS  
THROUGH SPV HOME LIGHTING SYSTEM (LED BASED)  
WITH INTEGRATION OF SPV STREET LIGHTIN  
SYSTEM(LED BASED)  
UNDER  
DDG SCHEME OF DDUGJY PROGRAMME  
OF  
REMOTE VILLAGES IN MEGHALAYA.

SpecifationNo,MNREDA/1658/2015.

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**TENDER DOCUMENT**

1 .NIT NO.MNREDA/1658/2015

2. Name of work : Electrification of 42 Nos. of Remote Villages in Meghalaya

By Design, Supply, Installation & Commissioning including Comprehensive Maintenance Contract (CMC) for 5(five) years through SPV Home Lighting System (Led based) with integration of SPV Street Lighting System (Led based) under DDG Scheme of DDUGJY Programme, with Integration of SPV Street Lighting System under Remote village Electrification.

3. Date of Issue Tender paper : From 01.09.2016 to 21.09.2016

4. Date of Submission of Tender: 26.09.2016 upto 12.00 noon

5. Date of Opening of Tender Commercial : 26.09.2016 from 3.00 p.m. onwards

& Technical Bid. :

Tender Document issued to M/s. \_\_\_\_\_

\_\_\_\_\_

against application vide letter No. \_\_\_\_\_ Dated \_\_\_\_\_

against payment of Rs.10,000/- (Rupees Ten thousand)

only vide Demand Draft/Banker's cheque/cash No. \_\_\_\_\_ dated \_\_\_\_\_

of Bank towards the cost of tender document (Non-refundable).

**PART-A**

**COMMERCIAL AND TECHNICAL BID**

( Page No. 1-59 )

**PART-B**

**BIDDING SCHEDULE**

( Page No. 60-65 )

Issued by :

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

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**PART-A**

**COMMERCIAL AND TECHNICAL BID**

**MEGHALAYA NON-CONVENTIONAL AND RURAL ENERGY  
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**NOTICE INVITING TENDER**

No.MNREDA/1658/2015/7148

Dated Shillong, the 31<sup>st</sup>, August,2016

Meghalaya Non-Conventional and Rural Energy Development Agency invites sealed tenders from eligible registered and experienced Indian Company/Manufacturer/Firm/Joint Venture/MNRE Channel Partner for electrification of 42 (forty two ) remote villages through 1772 SPV Home Lighting System and 266 SPV Street Lighting Systems with 5(five) years comprehensive maintenance contract for 42 remote villages under DDUGJY Programme in the State of Meghalaya .

Tender document will be issued during working days from 01.09.2016 to 21.09.2016 in the office of the undersigned on payment of Rs 10,000/- (Rupees Ten thousand) only in Demand Draft/Banker's cheque or can be download from website of MNREDA. Demand Draft/Banker's cheque should be drawn in favour of Member-Secretary-cum-Director, MNREDA, Shillong. Tender documents shall be received in the office of the undersigned upto 12.00 noon of 26.09.2016 and Technical Bid will be opened at the same place and date from 3.00 p.m.onwards.

The undersigned/MNREDA reserves all rights to cancel the tender and accept/reject any or all the bids without assigning any reasons thereof.

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

Copy to :-

1. The P.S.to the Chief Minister/Chairman, MNREDA,Shillong- For favour of kind information of the Chief Minister/Chairman, MNREDA.
2. The Under Secretary to the Govt.of Meghalaya,  
Power Department.
3. Shri G.S.Bhati  
General Manager (DDG)  
Rural Electrification Corporation Ltd. (REC)  
Core-Scope Complex  
Lodhi Road, New Delhi-110003.
4. Shri Subendhu Roy,  
Chief Project Manager  
REC, Project Office, Shillong.
5. Project Officers, MNREDA  
District Office.  
East/West Khasi Hills/Jaintia Hills/  
East/West Garo Hills/South Garo Hills/  
and Ri-Bhoi.
6. The State Informatics Officer  
National Informatics Centre  
Meghalaya, Shillong. } With a reference to display the NIT  
& Tender Document on the website  
(both hard and soft copy) of the tender  
Document enclosed herewith.
7. M/S Eastern Chronicle,Shillong } With a request to publish in one issue of  
One newspaper and the bill to be  
submitted in duplicate alongwith sample of  
advertisement for necessary payment.
8. Notice Board  
MNREDA, Shillong.

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

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## SHORT NOTICE INVITING TENDER SCHEDULED

No.MNREDA/1638/2015/7148

Dated Shillong, the 31<sup>st</sup> August, 2016.

Name of work : Electrification of 42 (forty two) remote villages by design, manufacturing, testing, supply, installation, and commissioning including 2(two) years warranty and 3(three) years mandatory Comprehensive Maintenance Contract (COMC) of 200Wp SPV Home Lighting System and 50Wp LED SPV Street Lighting System at different villages in 11(Eleven) Districts of Meghalaya.

Description of item	Estimated amount (Rs.in lakhs)	Bid security	Date & time of submission	Date & time of opening.
1. LED based Home Lighting Systems which includes <ul style="list-style-type: none"> <li>➤ SPV Module 200 Wp&gt;Tabular Gel Battery -12V/75 Ah</li> <li>➤ LED Lighting with fixtures-5x7W</li> <li>➤ Kw Electronics &amp; Solar charger 1x20W</li> <li>➤ DC fan-1x12w</li> <li>➤ Mounting structure &amp; other hardware cable and switches.</li> <li>➤ I &amp; C</li> </ul>	972.93	Rs.19.45lakh for general and Rs.9.73lakh for Scheduled caste and Scheduled Tribe.	26.09.2016 at 13.00hrs	26.09.2016 at 15.00 hrs.
2.SPV Street Lighting System-consists: <ul style="list-style-type: none"> <li>&gt; SPV Module-50Wp</li> <li>&gt;Tabular Gel battery-12V/75 Ah</li> <li>&gt; LED luminaire with charge controller, electronics &amp; cables.</li> <li>&gt; Pole and other mechanical fixtures and civil material.</li> <li>&gt; I &amp; C</li> <li>&gt; Comprehensive Maintenance Contract (CMC).</li> </ul>				

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

## CHECK LIST

To ensure that your tender submitted to MNREDA is complete in all respects, please go through the following check list and tick mark the enclosures attached with your tender.

Sl. No.	Description	Attached/not attached	Page No. if attached.
1.	Earnest money		
2.	Tender document fee - proof of submission		
3.	The original document duly signed and sealed on each page as confirmation of acceptance of terms and conditions specified in the tender..		
4.	A copy of registration certificate of VAT/CST/PAN and S.T. clearance certificate		
5.	Details of similar work done in last 3(three) years along with copies of the orders and certificates from the customers/their address, phone/fax/email as per the tender evaluation criteria and of the tender document.		
6.	Details of technical specification highlighting salient features of the system with IEC/registration and last report etc.		
7.	Bid security in the form of Bank Guarantee/call deposit/FDR from any scheduled or Nationalized Bank of India in favour of Member Secretary-cum-Director.		
8.	Data sheet duly filled up and completed as per tender document.		
9.	Document(s) required under minimum qualifying criteria for bidding.		
10.	Declaration of the supplier		
11.	Deviation, if any, from the specifications, terms and conditions etc.		
14.	Whether validity of your tender is confirmed as per document.		
15.	Availability of service facilities in Meghalaya/North East and reference name of firms/address phone No. and email etc.		
16.	Warranty of the system		
17.	SC/ST Certificate for those claiming in rebate Bid Security		

Note : Registered Indian Company/Firm/Joint Venture/MNRE Channel Partner should attach relevant documents/certification.



**DETAILS OF EMD AND TENDER DOCUMENT FEE ATTACHED.**

Sl. No.	Description
1.	Earnest Money Deposit Earnest Money Deposit of Rs. _____/- submitted in the form of Demand Draft/Banker's cheque, drawn on _____ Bank _____ Branch, bearing DD/ BC NO. _____ dated _____ is attached herewith.
2.	Tender Document Fee Tender Document fee of Rs. _____/- submitted in the form of Demand Draft/ Banker's cheque, drawn on _____ Bank, _____ Branch, Bearing DD/BC No. _____ dated _____ cash is attached herewith.

Signature and seal of the Manufacturer.

### UNDERTAKING OF THE TENDERER

I/we have read carefully and examined the Notice Inviting Tender Schedule, General Rules and terms and conditions of the contract, special conditions, schedule of rates/bids and other documents and rules referred to in the tender document for the supply.

I/we hereby tender my rates/bids for the execution of the work for MNREDA as specified within the time stipulated in the schedule in accordance with all aspects with the specifications, designs, drawings and instructions with such conditions so far as applicable.

I/we agree to keep the tender open for 90(ninety) days from the due date of submission thereof and not to make any modifications in its terms and conditions.

A sum of Rs.\_\_\_\_\_ lacs is hereby forwarded as earnest money in the form of Bank Guarantee crossed demand draft payable to Member-Secretary-cum-Director, MNREDA. I I/we, fail to commence or complete the work ordered in specified time I/we agree that the MNREDA shall, without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. The said earnest money shall be retained. By MNREDA towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be referred by MNREDA.

I/we hereby declare that I/we shall treat the tender documents, specifications and other records connected with the work as secret/confidential and shall not communicate information derived there from to any person other than a person to whom I/we have authorized to communicate the same or use the information in any manner prejudiced to the safety of MNREDA/the State Govt.

I/we shall abide to all the laws and shall be responsible for making payments of all the taxes, duties, levies and other Govt. dues etc. to the appropriate Govt. departments.

Our State Sales Tax registration TIN No. is \_\_\_\_\_and CST registration No.\_\_\_\_\_. The PAN NO. under the Income Tax Act is \_\_\_\_\_I/we shall be responsible for the payment of the respective taxes to the appropriate authorities and should I/we fail to to so, I/we hereby authorize MNREDA to recover the taxes due from us and deposit the same with the appropriate authorities on their demand.

Dated : Signature

Place : Name of Tenderer with seal

Signature & name of Witness with address :

## 1. INSTRUCTIONS TO BIDDER

This bidding documents provides the information necessary for the bidders to prepare responsive bids, in accordance with the requirements of the MNREDA. It also provides information on bid submission, opening and evaluation. Further in all matters arising out of the provisions of this bidding documents, the laws of the union of India shall be the governing laws and courts of SHILLONG shall have exclusive jurisdiction.

The government of India has launched Deen Dayal Upadhaya Gram JyotiYojna (DDUGJY) to extend financial assistance against capital expenditure to supplement the efforts of Power Departments in strengthening and Augmenting Distribution infrastructure in rural areas of the country.

The DDG Scheme is a sub scheme of DDUGJY. The DDG Scheme comprises of Electrification works of Off-Grid villages through Solar Home Lighting Systems along with Solar Street Lighting, in rural areas of Meghalaya.

As per Guidelines of DDUGJY, the project execution will be carried out on Build, Operate, Maintain and Transfer (BOMT) basis under which the design and engineering, supply and installation of equipment's and construction of the complete facility or works including 5 years comprehensive maintenance contract (CMC) are provided under one contract. The plant will be handed over to the state government in the work condition after 5 years.

### 1. DUE DATES

The due dates against the tender for implementation of village electrification through installation of solar home lighting system alongwith solar street lighting system (LED Based) including 5 (five) years Comprehensive Maintenance Contract (CMC) under DDG of DDUGJY project in the state of Meghalaya are as indicated below:

Sl. NO.	Particulars	Date	Time
1.	Last date and time for payment of a non-refundable fee for the cost of bidding documents.	21.09.2016	11.00 hours
2.	Last date and time of submission of technical bids	26.09.2016	12.00 hrs
3.	Date and time for opening of technical bid	26.09.2016	15.00 hrs
4.	Date and time for opening of financial bid		Will be intimated later

In the event of due dates specified being declared as holiday, due date will be next working day at the scheduled time.

## **1. 1. SCOPE OF WORK OF DDG FOR DDUGJY.**

- i) The broad scope of work should be Designed, manufacturing, shop testing, packing & forwarding, transportation, transit insurance, on site demonstration. Supply, installation, testing & commission, including 5 years Comprehensive Maintenance Contract (CMC) of Solar Home Lighting System alongwith Solar Street Lighting System (LED based) under DDG of DDUGJY of Deen Dayal Upadhaya Gram Jyoti Yojna DDUGJY in the State of Meghalaya on Build, Operate , Maintain & Transfer ( BOMT) basis.
- ii) The detail scope of works for 42 numbers of villages through Solar Home Lighting Systems alongwith Solar Street Lighting Systems ( LED based) under DDG of DDUGJY projects is attached in Annexure- 1.
- iii) The component of work is supply and installation of equipment's for 1772 numbers of Solar Home Lighting (LED Based) and 266 numbers of solar street lighting (LED based) under DDG of DeenDayalUpadhaya Gramd JyotiYojna (DDUGJY) project in the state of Meghalaya. The final figures likely to change.
- iv) Any other items not specifically mentioned in the specifications but which are required for erection, testing, commissioning and satisfactory operation of the entire scope of works are deemed to be included in the scope of this specification unless specifically excluded.

## **2. Eligibility and Qualification Criteria:**

- a) This invitation for bids, issued by MNREDA is open to all “reputed firms” including company(ies), Corporation, Government Owned Enterprises registered and incorporated in India as per Company Act, 1956/2013 (with amendment from time to time) in the manufacturing of any one of the following:SPV Cells/Solar Modules/Battery/PV System/Electronics/Solar Luminaries.
- b) The bidder or their Principal Manufacturer should have the experience and past performance on similar Contracts On Build, Operate, Maintain And Transfer (BOMT) EPC basis on Solar Projects.
- c) The bidders or their Principal Manufacturer must be equipped with R & D facility, NABL certified Laboratory approved by Govt. of India and must have adequate approved facility for testing of solar home lighting system (LED Based) and solar street lighting (LED based). The manufacturer must have NABL Certification in the field of electronics, electrical and photometry.
- d) The bidder or their Principal Manufacturer must have test certificate for SPV modules, battery, electronics, solar panels, luminaries, etc. from a authorized testing centre for either solar home lighting system (LED based) or solar street lighting (LED based).

- e) The bidder or their Principal Manufacturer shall have a registered office in India and should be in operation for a period of at least 5 years.
- f) The bidder or their Principal Manufacturer should have experience of having executed similar project of either solar home lighting system (LED based) or solar street lighting (LED based) project in last 5 years.
- g) The bidder in case they are not a manufacturing company/firm/corporation registered in India in the manufacturing in any one of the following :SPV Cells/Solar Modules/Battery/PV System/Electronics/Solar Luminaries as applicable.
- h) The bidder in case they are not a manufacturing company/firm/corporation registered in India in the manufacturing in any one of the following :SPV Cells/Solar Modules/Battery/PV System/Electronics/Solar Luminaries shall furnish registration certificate of their principal manufacturer, clearly indicating that they are manufacturers of SPV cells/solar modules/battery/PV system/Electronics/Solar Luminaries as applicable. In addition, the authorization letter from the manufacturer is to be accompanied with the tender documents as per manufacturer authorization format and agreement. Such authorization letter shall confirm and assurance in writing that the manufacturer will provide all support/assistance and shall be jointly responsible for installation, commissioning and complete execution of the contract.
- i) A manufacturer already participated through an authorized dealer shall not be eligible for participation in this bidding process on its own.
- j) The bidder has to sign MOU with the party from Meghalaya to carry out the installation and commissioning and CMC on a Non Judicial stamp paper of value not less than Rs.100/- and submit the copy of a MOU alongwith the bid. Such party shall process electrical contractor license and shall be the party with ample experience in the field of turnkey electrical contract. The MOU shall clearly indicate division of scope of work between the parties. However, the total scope of work responsibility will remain with bidder.
- k) The average annual turnover of bides for last three financial years i.e. (2013-14, 2014-15 and 2015-2016) should be at least Rs.8.5 crore (Rupees eight crore and fifty lakh)only.
- l) The bidder should have adequate financial stability and status to meet the financial obligation pursuant to the scope of work. Two (2) copies of their profit and loss account and balance sheet for the last 5 years must be submitted alongwith the bid. Also bidder should certify from their banks that they have solvency of more than Rs.8 crores so as to carry out the project smoothly.
- m) The bidder should have Service Tax Registration Certificate, PF Registration Certificate, VAT registration certificate.
- n) A firm which has been engaged by the employer to provide consultancy services for the preparation or implementation of a project, and any of its affiliates, shall not be eligible for bidding.

- o) Bidder should be ISO certified and submit the copy of the certification { (i) ISO-9002 (ii) ISO-14001 and (iii) ISO-18001 certification}.

### 3. **Tender document:**

In addition to this tender document, any other documents/instructions/amendments/revisions issued by MNREDA to the bidder till the date of opening of the bid shall also be deemed to be an integral part of the bid document in every respect & non-fulfilment of any condition stipulated in such amendments etc shall result in rejection of the bid.

### 4. **Cost of tender document:**

- 4.1. Tender document can be purchased from MNREDA on payment of tender cost of Rs.10,000/- (Rupees Ten thousand) only either in cash or demand draft/banker's cheque drawn in favour of Member-Secretary-Cum-Director, MNREDA, Shillong.
- 4.2. Bidders may also download the bid document from 4.1 above in the form of Demand Draft/Banker's cheque.

### 5. **Bid Security/ Earnest Money Deposit(EMD):**

- 5.1. Earnest Money Rs. 19.45 lakh for General Category and Rs. 9.37 lakh for SC/ST bidders in the form of Bank Guarantee / Call Deposit / FDR from any scheduled or Nationalised Bank of India pledged in favour of Member- Secretary- Director, MNREDA, Shillong should be furnished without which tender will be summarily rejected. The original copy of the Bid Security should be submitted in a separate envelope –“ BID SECURITY ENVELOPE” .
- 5.2. The bidders who claim exemption shall have to produce relevant papers from the proper authority i.e. NSIC registration certificate etc.
- 5.3. EMD shall be returned to the bidders after issue of final work order.
- 5.4. Bank Guarantee submitted against Bid Security shall be verified independently from issuing Bank. On receipt of certification from issuing bank, eligibility of bidder shall be decided for opening of price bid.

### 6. **Submission of Bid :**

The bid should be submitted latest by the date and time indicated in the NIT schedule. The bid should be submitted in 2(two) parts i.e. (i) COMMERCIAL & TECHNICAL BID AND (ii) FINANCIAL BID.

**6.1. Commercial & Technical Bid shall consist of the following documents:**

- i) Tender paper (Part- 'A') duly signed and sealed by authorized person/s of the Firm
  - ii) Cost of tender document, if downloaded or certified copy of money receipt for the tender document issued by MNREDA.
  - iii) Data sheet duly filled up and completed as per tender document.
  - iv) Documents required under minimum qualifying criteria for bidding.
  - v) Any deviation with justification thereof
  - vi) The supporting documents should be attested by self-attested.
  - vii) Any other document(s) as mentioned in this tender document

**6.2. Financial Bid shall consist of the following documents:**

- i) Tender Paper (Part-'B') duly signed and sealed by the authorized person/s of the firm
- ii) Price bid should be quoted in the format given.

6.3. Commercial & Technical Bid should be sealed in a separate envelope, hereinafter referred to as "First Envelope" and marked as "Commercial & Technical Bid"

6.4. Commercial & Technical Bid should not contain price of any items otherwise the bid shall be disqualified.

6.5. Financial Bid should be sealed in a separate envelope, hereinafter referred to as "SECOND ENVELOPE" and marked as "Financial Bid"

6.6. Financial Bid should not contain any technical matter or other matter except price bid. The date of opening of the price bid will be notified to qualified bidders after commercial & technical bid evaluation.

6.7. First Envelope and Second Envelope should be sealed in a third envelope marked as "Tender Offer" for the name of work and No. alongwith name of the Firm and full address.

**7. Opening and evaluation of tender.**

7.1. On the date and time indicated in the NIT schedule, only the outer envelope and First Envelope shall be opened. If the cost of the tender document and Earnest Money are found to be in order, then the commercial and technical bid document shall be accepted and kept for evaluation. Otherwise, the tender document shall stand rejected and shall be returned to the bidder.

- 7.2. The bid document which is accepted shall be evaluated first as per the qualifying criteria and if found to be qualified, the technical and commercial bid shall be evaluated.
- 7.3. If the bid document is not found to be qualified as per the qualifying criteria, it shall be treated as non-responsive and the technical and commercial bid shall not be evaluated and shall be returned to the bidder.
- 7.4. Only the bidders whose technical and commercial bids are responsive shall be eligible for opening of the financial bids.

8) **Opening of financial bid :**

Date of opening of financial bid shall be intimated individually to those bidders who have qualified in the technical and commercial offer.

- 8.1. The price quoted should be firm and valid for 1 (one) year from the date of opening of the price bid. The price should be quoted as per the format provided in the tender document. Price break-up of various components must be clearly indicated in the format and failure to comply with the above shall result in rejection of the bid.
- 8.2. The rate(s) should be written in English, both in figure and words. In case of any differences between the prices mentioned in figures and words, the prices mentioned in words shall be considered as 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 calculated accordingly.
- 8.3. Any bid quoted below par is inadmissible and shall summarily be rejected.
- 8.4. Price quoted should be firm and F.O.R. destination, including all taxes including VAT & CST and all duties, packing, forwarding freight, insurance and any other incidental charges.

9) **Award of Contract :**

The contract shall be awarded to the lowest (L<sub>1</sub>) bidder and he shall inform of acceptance of the award within 3 (three) days from the date of issue of the work order for which he should respond and acknowledge within the next 3 (three) days failing which the work shall be offered to the next lowest bidder at the L<sub>1</sub> rate.

10) **Contract Performance Guarantee(CPG) :**

- i) The successful bidder shall furnish a Contract Performance Guarantee @ 10% of the bid amount quoted in the form of Bank Guarantee/Call Deposit/FDR within 7 (seven) days from the date of the award of the contract. The Contract Performance Guarantee should be valid for a period of one year initially and may be extended if required.



11) **Additional Information :**

Any other information(s) which are required to be furnished as per detailed tender paper but which have not been specifically indicated should be furnished.

12) **Other terms and conditions :**

- 12.1. Insertion, post, script, addition and alteration shall be confirmed by the bidder's signature and stamp.
- 12.2. Incomplete tender or tenders not submitted as per requirement as indicated in the NIT shall be rejected.
- 12.3. Bidders shall submit their offer strictly as per terms and conditions of the tender document.
- 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 shall be received in duly sealed cover only within the due date and time. No bids shall be received after the due date and time.
- 12.6. MNREDA reserves the right to reject part or whole of the bid/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 be construed that the bidders would be automatically considered as qualified.

## GENERAL TERMS & CONDITIONS

### 1. Signing of Tender Paper

The Tender Document as issued by MNREDA should be signed on every page by the authorized person of the firm and it will be viewed as acceptance of each and every condition containing therein.

### 2. Time of Completion

The work should be completed within **120 (one hundred and twenty) days** from the date of issue of final work order. However, the supply of all the major materials for the work like SPV modules, battery, inverter, structures, cables, etc should be completed within **60 (Sixty) days** from the date of issue of final work order, failing which the work order shall stand cancelled and the Contract Performance Guarantee shall be forfeited. Recovery of the mobilization advance shall also be effected.

### 3. Agreement

An Agreement has to be signed within 10 (ten) days of issue of the final work order. The Agreement shall be prepared by the successful bidder in the prescribed format (**Appendix 1**) on a non-judicial stamp paper of Rs. 100/- (Rupees one hundred) only and signed by the authorized persons of the Firm and MNREDA. The annual maintenance contract agreement shall be signed separately on completion of installation and commissioning of the system.

### 4. Warranty

The System supplied should be under warranty for a period of **5 years** and the SPV Module for a period **of 25 years** from the date of commissioning of the System.

### 5. Payment Terms and Conditions

The Bidders shall be entitled to the following payment terms:

- (a) Mobilization Advance: The contractor shall be paid 15% (fifteen percent) of the contract value as mobilization advance on application and against a Bank Guarantee of 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 the work.
- (b) 40% (forty percent) of the contract value shall be paid against receipt of materials at site and in good condition, subject to availability of funds.
- (c) 25% (thirty percent) of the contract value shall be paid on completion and commissioning of the System.
- (d) Balance 10% (ten percent) shall be released at the expiry of warranty period and after submission of performance report duly certified by the concerned Project officer.

- (e) Balance 10% (ten percent) shall be released at the expiry of warranty period and after submission of performance report duly certified by the concerned Project Officer.

## **6. Contract Performance Guarantee**

- 6.1 The bidder shall submit the Contract Performance Guarantee (CPG) @ 10% of the bid amount within 7 (seven) days from the date of award of the Contract. The Contract Performance Guarantee should be valid for a period of one year initially and may be extended if required.
- 6.2. In the event of the 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 Contract Performance Guarantee shall be forfeited. Further, MNREDA shall have the right to recover any sums advanced to the contractor as mobilization advance.

## **7. Subletting of Contract**

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

## **8. 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 matters.
- (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 MNREDA in writing in order to remove such doubts.

## **9. Service Centre**

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

## **10. Authority of Person Signing the Documents**

- a) Authorization letter as per Proforma- 2 for the person signing the bid document or attending the bid meeting should be furnished.
- b) A person signing the bid document or any document forming part of the bid document shall be deemed to warrant that he has authority to bind such offer / document and if on enquiry, it appears that the person signing, had no authority to do so, MNREDA may without prejudice to other civil and criminal remedies, cancel the bid / contract and hold the signatory liable for all costs and damages.

### **11. Breach/ Cancellation of the Contract**

In case of non-performance in any form or change of the covenants and conditions in this contract by the contractor, MNREDA shall have the power to **annul**, rescind, cancel or terminate the contract and upon its notifying in writing to the contractor that it has so done, this contract shall be absolutely determined. The decision of MNREDA in this regard shall be final and binding.

### **12. Responsibility of the Contractor**

The contractor shall guarantee and be entirely responsible for the execution of the contract in accordance with the specifications, 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, erection, testing and commissioning, within the warranty. On completion of commissioning, a separate agreement shall have to be signed in respect of a comprehensive annual maintenance contract for a period of three years after the warranty period.

### **13. 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.

### **14. 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 MNREDA from time to time regarding the transit of the plant and material.
- (b) Notification of dispatch or delivery in regard to each and every consignment shall be made to the MNREDA immediately after dispatch or delivery. The contractor shall submit to the MNREDA consignee invoice in duplicate and packing account of all stores dispatched or delivered by him.
- (c) In case of any occurrence of loss or damage in transit up to destination, it shall be the liability of the contractor to initiate and pursue the claim with the Insurance Company. He should take immediate steps to repair the damaged equipment or arrange a replacement thereto. Any extension of time limit required in such contingency will be considered by MNREDA on merit.

### **15. Inspection of Material**

The material shall be dispatched by the supplier after inspection by the Director-cum-Member-Secretary, MNREDA or his representative. The supplier shall give 7 days written notice of any material ready for inspection. The material shall be erected in the project only after acceptance of the same. The installation of the work shall be carried out under the close supervision of the Project Officer, MNREDA. The final inspection after installation and commissioning shall be carried out by Project Officer, MNREDA. MNREDA can also get the systems tested by any approved test centre/laboratory. Rejected material (if any) will be replaced by the supplier at its cost within a stipulated time.

**16.. Force Majeure :**

The contractor shall not be liable for any penalty for delay or for failure to perform the contract for reasons of "Force majeure" such as natural calamities, and any other acts provided that the contractor shall, within 10(ten) days from the beginning of such delay, notify the MNREDA in writing of the cause of delay. MNREDA shall verify the facts and grant such extension as facts justify. Delay in supply of any accessories of solar system like PCU, battery bank etc. by the related firms, to whom the bidders has placed order shall also not be treated as force majeure.

**17.) Rejection of works :**

In the event of any of the material supplied/work done by the contractor is found defective in material or workmanship or otherwise not in conformity with the requirements of this contract specifications, MNREDA shall either reject the material and/or work and advise the contractor to rectify the same. The contractor on receipt of such notices shall rectify or replace the defective material and rectify the work, free of cost. If the contractor fails to do so, MNREDA may:

- a) At its option, replace or rectify such defective materials and/or work and recover extra cost so involved from the contractor plus 15% (fifteen) percent service charges of the cost of such rectification from the contractor or terminate the contract for balance work/supplies with enforcement of penalty as per contract.
- b) Defective materials/workmanship will not be accepted under any condition and shall be rejected outright without compensation. The contractor shall be liable for any loss/damage sustained by MNREDA due to defective work.

**18.) Penalty for delay in completion of work:**

If the contractor fails to complete the erection, testing and commissioning etc. within the time schedule specified in the work order, including any extension granted thereto, MNREDA will recover from the contractor as penalty a sum of one percent (1.0%) of the system price of the incomplete portion of the work for each calendar month of delay or part thereof. For this purpose, the date of taking over shall be reckoned as the date of completion. The total penalty shall not exceed 5% (five percent) of the contract price.

**19.) Insurance :**

The contractor shall arrange insurance coverage for the materials at his custody for the work under execution as per the conditions laid down in the relevant clause of the technical specification, at least till the systems are commissioned and handed over to MNREDA.

The contractor shall take up insurance or such other measures for the manpower so as to cover the claim for damage arising under Workman's Compensation Act and other applicable State/Central Laws. MNREDA shall not bear any responsibility on this account.

**20. Non-Assignments :**

The contractor shall not assign or transfer the work orders issued as per this contract or any part thereof to any other person/party without the prior approval of MNREDA.

**21. Income Tax:-**

Without prejudice to the obligations of the contractor under law, any Income Tax, which MNREDA may be required to deduct by law/statute shall be deducted at source and shall be paid of the contractor. MNREDA shall provide the contractor a certificate for such deduction of tax.

**22. Court of Competent Jurisdiction :**

Any disputes shall be referred to the courts of Shillong which shall have absolute jurisdiction to entertain and try the case.

## **SCOPE OF WORK**

### **1. Scope of Work**

The scope of work shall include the following:

- a) Design, manufacture, supply, installation & commissioning of Solar PV Home Lighting System and SPV 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 5 years faultless operation.
- e) After sales service

This would inter-alia include:

- a) A clear understanding of the features of the proposed project site. This may require a prior visit to the proposed site.
- b) Supply of the complete systems, including all necessary components, sub components, spares, and tools etc. as per technical specifications given elsewhere in this document.
- c) Erection and commissioning of the supplied systems on the specified site.
- d) All structural drawings to be approved by the Project Officer In-charge, MNREDA.
- e) Any other work urgently required as per site conditions.
- f) The bidder must also provide a detailed operation and maintenance manual specific to the installed systems.
- g) Fabrication, supply and the installation of suitable support for the PV panels and other components whichever is required with the accessories.
- h) Provide electrochemical marking (embossing) on each solar module which will show name of manufacturer, year of manufacturing and capacity of solar module.
- i) Supply of manual for Operation and Maintenance of all the systems in English or local language.
- j) Supply and installation of control equipments required for the system.
- k) Training of the user(s) for operation and maintenance of the system.
- l) Any additional works not covered above, but necessary for the functioning of the system and required to be incorporated as per specification.
- m) Regarding actual work to be carried out at the site, tenderer needs to execute the work in consultation with the office of MNREDA.
- n) The successful bidder shall provide Comprehensive Maintenance Contract (CMC) of 5 years after the end of the warranty period.
- o) The successful bidder shall provide the necessary training to the identified representative approved by MNREDA during the course of 5 years of warranty and CMC periods for proper daily operation and maintenance of installed system.

**ANNEXURE-I**  
**DETAILS OF VILLAGES, LOCATION, CENSUS CODE, NO. OF HOUSEHOLD AND SYSTEMS**  
**REQUIREMENTS TO BE INSTALLED IN 42 REMOTE VILLAGES.**

Sl. No.	Name of Village	Block	District	Census Code 2011	Total Household Census 2011	Household considered	Systems requirements	
							Solar home lighting system	SPV Street Lighting System.
1.	Damasitung	Saipung	-do-	279475	7	8	8	1
2.	Lahalien	Khliehriat	-do-	279483	74	83	83	12
3.	Lejri	-do-	-do-	279484	57	64	64	10
4.	Kazakham	Saipung	-do-	279565	20	22	22	3
5.	Bambaithol	Saipung	-do-	279581	9	10	10	2
6.	Kayengpur	Saipung	-do-	279582	30	33	33	5
7.	kayengphai	Saipung	-do-	279583	10	11	11	2
8.	Salain	Saipung	-do-	279585	15	17	17	3
9.	Lalzol	Saipung	-do-	279592	15	17	17	3
10.	Nachangzol	Saipung	-do-	279594	23	26	26	4
11.	Daka Pathar	Jirang	Ri-Bhoi	277763	010	1	11	2
12.	Jatalong	Umsning	-do-	277948	041	5	46	7
13.	Khliehumwang	-do-	-do-	277953	083	11	94	14
14.	Kynthem Nongmali	-do-	-do-	277740	035	5	40	6
15.	Madanumweng	-do-	-do-	277951	065	8	73	11
16.	Mawsladieng	-do-	-do-	277880	019	2	21	3
17.	Mawtynkong	-do-	-do-	277747	034	4	38	6
18.	Nongterih	-do-	-do-	277743	015	2	17	3
19.	Pdengtleit	-do-	-do-	277836	064	8	72	11
20.	Umlaper	-do-	-do-	277883	032	4	36	5
21.	Ummat	-do-	-do-	277884	048	6	54	8
22.	Umru	-do-	-do-	277878	015	2	17	3
23.	Umsder	-do-	-do-	277881	009	1	10	2
24.	Umshyngktot	-do-	-do-	277835	042	5	47	7
25.	Umtlieh	-do-	-do-	277954	126	16	142	21
26.	Laru	-do-	-do-	277879	162	19	181	27
27.	Kharprah	Mawsynram	East Khasi Hills	278748	025	3	28	4
28.	Mawdiangkop	Nongstoin	West Khasi Hills	276657	031	4	35	5
29.	Talimara	-do-	-do-	276658	019	2	21	3
30.	Umdiangphiang	-do-	-do-	276666	012	2	14	2
31.	Nongkseh	-do-	-do-	276724	002	0	2	0
32.	Porkhadoh	Mawshynrut	-do-	276881	020	3	23	3
33.	Umsakhlawjriaw	-do-	-do-	277019	099	13	112	17



34.	Pormador	Ranikor	-do-	277141	038	5	43	6
35.	Nongmalang	-do-	-do-	277148	027	4	31	5
36.	Nongdewsaw	-do-	-do-	277182	002	0	2	0
37.	Mawhati	-do-	-do-	277204	048	6	54	8
38.	Kewri	-do-	-do-	277255	006	1	7	1
39.	Chore Pahar	Resubelpara	North Garo Hills	274579	033	4	37	6
40.	Mandalanggre	-do-	-do-	274648	025	3	28	4
41.	Nunmati	Selsella	West Garo Hills	272917	024	3	27	4
42.	Rongranggiri	-do-	-do-	273026	099	13	112	17
<b>TOTAL</b>							<b>1772</b>	<b>266</b>

## TECHNICAL SPECIFICATIONS

### A. SPV HOME LIGHTING SYSTEM:

#### 1. DEFINITION:

A Solar Home Lighting System (SHLS) provides a comfortable level of illumination in one or more rooms of a house. The SHLS consist of a PV module, control, electronics, battery, and luminaire(s) light emitting diode (LED) is a p- function device which units when forward electric current passes through it. A LED based solar home lighting system aims at providing solar electricity for operating LED lights for specified hours of operation per day.

The components of LED based SHLS included the following are as indicated below:-

- 1) SPV Module (with mounting structure- 200 Wp).
- 2) Solar charge controller with MPPT
- 3) Tabular Gel Battery- 12 V 75 Ah
- 4) White Light Emitting diode (W-LED) luminaire/LED batten-5x7 W
- 5) DC Fan – 12W
- 6) DC Socket – 20W (for mobile charging point and TV Point)

#### 2. **BROAD PERFORMANCE SPECIFICATIONS:**

The broad performance specifications of W-LED light source based solar home lighting system are given below:-

#### 2.0. TECHNICAL SPECIFICATION –Solar Home Lighting System

- 2.1. The white LED based solar home lighting system should conform to the following broad specification/ performance parameters.

PVModule	200 Wp (12V system) measured at 16.4 at load module VOC minimum of 21V.
Battery	T-Gel Battery with minimum rating of 12V-75 Ah @ C/10 hour discharge rate. Minimum depth of discharge (DOD) 75%.
Light source	White light emitting diode (W-LED)
Light Output	White colour (Colour temperature = 5500°K - 6500°K with the design criteria to achieve the following parameters. 7W lighting design. a) Average lux level on work plane= 25 lux b) Over all uniformity (Min/average)>0.40 c) Maintenance factor = 0.85 d) The illumination should be uniform without darkbands or abrupt variations and shooting to the eye. Higher light output will be preferred. e) The following parameters are to be considered for the design: f) > 7w Lighting design g) >Room size as below: h) Length : 10ft, Width : 10ft, Height:10ft. i) Luminaire Mounting Height from ground level: 7ft (on wall) j) Reflectance floor : 20%, Ceiling:50%, Walls : 30%.
Luminaire	5 Nos. of 7W LED light batten minimum lumen output > 550 lumen
Electronics	Minimum 90% total efficiency
Average duty cycle	Dust to dawn
Autonomy	3 days @ 5-6 hrs per day.

### 3. Duty Cycle:-

The LED solar home lighting system should be designed to operate for dust to dawn under average daily insolation of 4.5 kwh/sq.m/day on a horizontal surface.

#### **4. Light Source :**

- i) The light source will be of white LED type.
- ii) The luminous performance if individual LED used should not be less than 70 lumen/watt when the luminaire is measured as a whole.
- iii) The colour temperature of W-LEDs used in the system should be in the range of 5500°K – 6500°K
- iv) LEDs should not emit ultra-violet light.
- v) The light output from the W-LED light source should be constant throughout the duty cycle.
- vi) The lamps should be housed in an assembly suitable for indoor use.
- vii) The make, model number country of origin and technical characteristics of white LED used in the lighting system must be furnished.

#### **5. Battery :-**

- i) The T.Gel battery should conform to latest BIS/international standards. A copy of test certificate for the battery (including its make country of origin and model number) used in the system should be provided.
- ii) Permitted depth of discharge (DOD) is at least 75% of the rated capacity of the battery.
- iii) The battery box have a minimum rating of 12V, 75Ah at @ C/10 hour discharge rate (12V system).
- iv) The battery box with provision of secured locking arrangement should be pre-coated galvanized sheet of > 2mm, base plate and > 1mm thick for side and top cover powder-coating of 80 micron thickness is required for protection.

#### **6. Electronics:**

- i) Electronics should operate at 12V and the total electronics efficiency should be at least 90%.
- ii) Electronics should have temperature compensation for proper charging of the battery throughout the year.
- iii) The idle current should be less than 1mA at rated voltage and rated current.
- iv) Solar charge controller should be integrated charger and load control and USB mobile charger.
- v) Necessary lengths of wires/cables, switches suitable Dc use and fuses should be provided wherever required.

- vi) The voltage drop from module terminals to the battery terminals to the battery terminals should not exceed 0.6 volts including the drop across the diode and the cable when measured at maximum charging current.

#### **7. Luminaire:**

The specification of the luminaire shall not be less than as special below:-

- i) Driver life shall be 100,000 cycles
- ii) CRI shall be >70
- iii) LED batten must be designed for 50,000 hours of life class as per <80 report.
- iv) It must consist of mid-power white LEDs of approved make and must not emit any UV radiation.
- v) The efficiency of driver DC-DC (as per IEC-62384) must be greater than 90% and must be designed for 50,000 hrs life class.
- vi) The colour temperature of white LEDs used in the system should be in the range of 5500°K-6500°K and R9 value in LM 79 report should be positive for Indoor home lighting system.
- vii) The illumination should be uniform without dark bands or abrupt variations, soothing to the eye. Higher light output will be preferred.
- viii) The lumen output of the luminaire should be >550 lumens for 7 watt batten.
- ix) The lamps should be housed in an assembly suitable for indoor use and shall comply to IP 65.
- x) The luminaire arm should be a powder-coated.
- xi) The manufacturer of luminaire must have internal test facilities for demonstration and this test as per LM 80 report. A copy of the Cm 80 report should be submitted alongwith the offer.
- xii) Auto resettable reverse polarity protection shall be provided.

#### **8. SPV Module:**

- i) The SPV Module capacity should be 200 Wp
- ii) The type of Module should be poly-crystalline silicon solar cells with IEC-61215 and its latest amendment edition II/BIS from an NABL or IEC Q accredited laboratory.
- iii) The Solar Module Efficiency should not be less than 14%
- iv) The operating voltage corresponding to the power output mentioned above should be 16.4 V
- v) The open circuit voltage of the PV Module under STC should be at least 21.0 volts.

- vi) The terminal box on the module should have a provision for opening it for replacing the cable, if required.
- vii) A strip containing the following details should be laminated inside the module so as to clearly visible from the front side.
- viii) There should be a name plate fixed the module which will give:
  - a) Name of the Manufacturing/Distinctive Logo
  - b) Model or Type Number
  - c) Serial Number
  - d) Year of the Make
- ix) The solar panel mounting structures should be flexible to tilt to any angle at site.
- x) The junction box should be of IP 65 model and the mounting frames should be hot dipped galvanized.
- xi) The PV module should be India Make.
- xii) The name of MNREDA along with the following details shall be engraved on all components “DDG of DDUGJY Project”.  
**“NOT FOR SALE “ GOVT. Property.**

**9. Charge Controller:**

- i) Charge controller should be MPPT (Micro controller based charger) type with charging efficiency > 95%. Manufacturer must have in house NABL accredited testing facility to prove the efficiency as per standards.
- ii) The 12V MPPT solar charge control unit of minimum 5A rating and TC of + 65 degrees C with digital display of voltage and current battery panel load and battery state of charge.
- iii) The charge controller should have USB port (integrated with solar charge control unit) for mobile charging.
- iv) The charge controller shall conform to IEC 60068 or MNRE standard
- v) The charge controller no load current shall be less than 10mA.
- vi) The enclosure shall be IP 65
- vii) The charge controller shall be protected with auto resettable reverse polarity and short circuit protection for both battery and panel side.
- viii) The charge controller shall have a temperature compensated set points for charging.
- ix) To get the maximum charging of battery, the PV array disconnect and connect points should be set properly.
- x) Protection against polarity reversal of PV array and battery, over current, shot circuit, deep discharge input voltage and blocking diode protection against battery right time leakage through PV module must provide.

**10. Electronics protection:**

- i) Adequate protection is to be incorporated under “No Load” conditions if 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 of reverse flow of current through the PV module(s) should be provided.
- v) Electronics should have temperature compensation for proper charging the battery throughout the year.
- vi) Load reconnect should be provided at 80% of the battery capacity status.
- vii) Adequate protection should be provided against battery reverse polarity.

**11. Mechanical Components:**

- i) A corrosion resistant metallic frame structure (with dip galvanized) should be provided to hold the SPV module.
- ii) The frame structure should have provision to adjust its angle of inclination to the horizontal, so that it can be installed at the specified tilt angle.
- iii) Light source should be either for wall mounted or ceiling mounted or can be hung from the ceiling in a stable manner as per site requirements.
- iv) A vented plastic/wooden/metallic box with acid proof corrosion resistant paint for housing the storage battery indoors should be provided.

**12. Indicators:**

- i) The system should have two indicators, ‘GREEN’ & ‘RED’.
- ii) 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.
- iii) Red indicator should indicate the battery “Load cut off” condition.

**13. Quality and Warranty:**

- i) The Solar Home Lighting System will be warranted for a period of 5(five) years from the date of supply.
- ii) The PV module(s) will be warranted for a minimum period of 25 years from the date of supply.

- iii) The PV module(s) used in solar home lighting system must be warranted for their output peak watt capacity, which should not be less than 90% of 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. The manufacturers can also provide additional information about the system and condition of warranty as necessary.

**14. Operation and Maintenance Manual:**

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

- i) Basic principles of photovoltaic.
- ii) A small write up (with block diagram) on solar home lighting system etc. components, PV modules, battery, electronics and luminaire and expected performance.
- iii) Significance of indicators
- iv) Type, model numbers, voltage and capacity of the battery used in the system.
- v) The make, model number, country of origin and technical characteristics (including IESNA LM 80- report) of W-LEDs used in the lighting system must be indicated in the manual.
- vi) Clear instructions about mounting of PV module(s)
- vii) Clear instructions on regular maintenance and trouble shooting of the solar home lighting system
- viii) DO's and DON'T's
- ix) Name and address of the contact person for repair and maintenance, in case of non-functioning of the system.

**15. DC Fan :**

- i) The wattage of DC Fan should be 12W.
- ii) The DC Fan should be Universal design – Table Fan.
- iii) Type of Blade consists Three speed Regulator.
- iv) The made of Blade should be Acrylic Plastic blades.

**16. Solar Charger :**

1x20W DC Socket should have a provision for i) Mobile charging and TV point.



## TECHNICAL DATA SHEET

### A. HOME LIGHTING SYSTEM.

<b>GUARANTEED TECHNICAL PARTICULAR: Solar Home Lighting(LED Based) System.</b>		
Sl. No.	Descriptions	Proposed specification
	Name of Bidder:	
1.	Duty Cycle	
2.	Wind speed resistance of system	
	<b>ELECTRONICS:</b>	
3.	Luminaire	
4.	LED lamp/Batten make	
5.	LED lenses	
6.	Total lumen output	
7.	System wattage (LED+driver)	
8.	Luminaire efficacy per watt	
9.	Driver type	
10.	Driver efficiency	
11.	Driver current	
12.	Luminaire housing	
13.	Ingress Protection	
14.	Luminaire arm	
15.	Dimming facility	
16.	Applicable Standard	
	SPV	
17.	Applicable Standard	
18.	Material structure of solar cell	
19.	VOC	
20.	Minimum power at Vmax	
21.	Cell efficiency	
22.	Country of manufacture	
23.	Mounting frame	
	<b>BATTERY</b>	
24.	Make (as per test proof)	
25.	Type of battery	
26.	capacity	

24.	Make (as per test proof)	
25.	Type of battery	
26.	Capacity	
27.	Permitted depth of discharge	
28.	Reference of IS No.	
29.	Ampere hour efficiency	
30.	Watt hour efficiency	
31.	Type test certificate	
32.	Battery system back-up	
	<b>BATTERY BOX</b>	
33.	Battery Box material and protection	
34.	Battery Box protection	
35.	Battery box support structure	
	<b>MODULE MOUNTING FRAME/STRUCTURES</b>	
36.	Type	
37.	Height	
38.	Tilt angle	
39.	Structure galvanization (Mass of zinc coating in grams per square metre)	
40.	Applicable standard, if any	
	<b>CHARGE CONTROLLER</b>	
41.	Rating	
42.	Type	
43.	Temperature compensated charging	
44.	Efficiency	
45.	Enclosure for charge controller	
46.	No load current	
	<b>INBUILT PROTECTION:</b>	
47.	Overcharge protection for battery	
48.	Deep discharge protection for battery	
49.	Reverse polarity protection for panel and battery	
50.	Temperature compensated charging for battery	
	<b>DC FAN</b>	
	Wattage	
	Universal design	
	Type of Blade	
	Made of Blade	
	<b>SOLAR CHARGE</b>	
	Wattage	
	Point for mobile charging and TV Point	

Yours faithfully,

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal :

## B. SPV STREET LIGHTING SYSTEM:

### 1. DEFINATION:

A Stand-Alone Solar Photovoltaic Street Lighting System (SLS) is an outdoor lighting unit used for illuminating a street or an open area. The Solar Street Lighting System consists of Solar Photovoltaic (SPV) module, a luminaire, storage battery, control electronics, inter-connecting wires/cables module pole including hardware and battery box. The luminaire is based on white light emitting diode (W-LED) a solid state device which emits light when electric current passes through it. 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 to the pole.

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

The following components included in the solar street lighting system (LED based) as below:-

- i) SPV Module (with mounting structure)-50 Wp
- ii) Solar charge controller with MPPT
- iii) Tubular Gel Battery -12V 75 Ah
- iv) White lighting Emitting diode (W-LED) luminaire-

### 2. BROAD PERFORMANCE SPECIFICATIONS:

The broad performance specifications of a W-LED light source based solar street lighting system are given below:-

Module	50 Wp under STC 12V system measured at 16.4V at load module VOC minimum of 21V.
Light Source	White Lighting Emitting Diode (W-LED)
Light output	White colour (colour temperature=5500°K-6500°K with the Designed criteria to achieve the following lighting parameters. a) Average lux level-16 lux b) Uniformity factor >6 c) Transverse uniformity >4 d) Maintenance factor = 0.85 The illumination should be uniform without dark bands or abrupt variations and soothing to the eye. Higher light output will be preferred.

Battery	Tubular Gel Battery with minimum rating of 12V 75Ah at C/10 hour discharge rate. Minimum depth of discharge (DOD) 75%.
Luminaire	
Mounting of light	The luminaire height should be 4 metre above the ground.
Electronics efficiency	Min.90% total
Average duty cycle autonomy	3 days (min 42 operating hours as permissible discharge).
Dimming	2 stage – Dimming option must be incorporated as per below:- 100% light output for first 4 hours 60% light output for next 3 hours. 40% light output for the next 5 days.

### 3. DUTY CYCLE:

The LED Solar Street Lighting system should be designed to operate for dusk to dawn, under average daily insolation of 4.5 Kwh/sq.m/day on a horizontal surface.

### 4. LIGHT SOURCE:

- i) The light source will be a white LED type
- ii) The colour temperature of white LED used in the system should be in the range of 5500°K-6500°K
- iii) The luminous performance of individual LED used should not be less than 100 lumen/watt when the luminaire is measured as a whole.
- iv) W-LED should not emit ultraviolet light
- v) The light output from the W-LED light source should be constant throughout the duty cycle.
- vi) The lamps should be housed in an assembly suitable for outdoor use.
- vii) The temperature of heat sink should not increase more than 20°C above ambient temperature during the dusk to dawn operation.
- viii) The make, model number, country of origin and technical characteristics of white LEDs used in the lighting system must be furnished.

**5. BATTERY:**

- i) Tubular Gel battery should conform to latest BIS/international standards. A copy of test certificate for the battery (including its make country of origin and model number) used in the system should be provided.
- ii) Permitted depth of discharge (DOD) is at least 75% of the rated capacity of the battery.
- iii) The Battery will have a minimum rating of 12V, 75Ah at C/10 hour discharge rate (12V system).
- iv) The battery box should be pre-coated galvanized sheet of > 2mm base plate and > 1mm thick for side and top cover. Powder-coating of 80 micron thickness is required for protection.
- v) The battery box, with provision of secured locking arrangement should be top mounted.

**6. ELECTRONICS:**

- i) The total electronics should be at least 90%
- ii) Electronics should operate at 12V and should have temperature compensation for proper charging of the battery throughout the year.
- iii) No load current consumption should be less than 20mA
- iv) The idle current should be less than 1mA
- v) Necessary lengths of wires/cables switches suitable for DC and fuses should be provided whenever required
- vi) The voltage drop from module terminals to the battery terminals should not exceed 0.6 volts including the drop across the diode and the cable when measured at maximum charging current.

**7. LUMINAIRE:**

- i) Operating voltage should be 12V
- ii) System wattage (LED + driver) should be 50Wp
- iii) System luminaire efficiency should be > 110LM/W
- iv) System light output from luminaire should be > 2000 lumens
- v) LED life should be > 50,000 hours at LM 80
- vi) Driver type should be DC-DC
- vii) Driver efficiency should be 92%
- viii) Driver life should be 100,000 cycles
- ix) Light distribution should be street lighting optics using with high power LED with peanut lenses.
- x) CCT should be 5500°K-6500°K
- xi) CRI should be > 70
- xii) Luminaire housing & ingress protection should IP 65 aluminium pressure die-cast single housing with SS screws.

- xiii) Type of luminaire should be cut-off type as per 1944
- xiv) Luminaire arm should be power coated.
- xv) LM 80 and Lm 79 report NABL accredited lab should be submitted
- xvi) IP 65 test report shall have to be submitted\applicable standard to be IEC 61215(revised certificate)
- xvii) LED connections should be all LEDs connected in series. All LEDs must have a fall short mechanism.
- xviii) In house testing facility should have in house testing facility and must submit the polar curves for the luminaire.
- xix) The following information should be provided
  - a) LEDs lamp make
  - b) White LEDs model number
  - c) White LEDs country of origin
  - d) White LEDs technical characteristics

**8. SPV MODULE(S):**

- i) The PV Module(s) capacity should be 50Wp (12V system)
- ii) The PV module(s) shall have contain poly-crystalline silicon solar cells with IEC 61215 edition II/BIS 14286 from an NABL or IEC Q accredited laboratory
- iii) The power output of the module(s) under STC should be a minimum of 30Wp at a load voltage of  $16.4 \pm 0.2V$ .
- iv) The solar module efficiency should not be less than 14%
- v) The operating voltage corresponding to the power output mentioned above should be 16.4V
- vi) The open circuit voltage of the PV modules under STC should be 21.0V
- vii) The terminal box on the module should have a provision for opening it for replacing the cable, if required.
- viii) A strip containing the following details should be laminated inside the module so as to clearly visible from the front side.
- ix) There should be a name plate fixed the module which will give:
  - a) Name of the Manufacturer/Distinctive Logo
  - b) Model or Type Number
  - c) Serial number
  - d) Year of Manufacture
- x) The Solar panel mounting structure should be flexible to tilt to any angle at site.

- xi) The junction box should be of IP 65 model and the mounting frames should be hot dip galvanized.
- xii) The PV Module should be India Make
- xiii) The name of MNREDA along with the details shall be engraved on all components “DDG of DDUGTY Project”

**9. CHARGES CONTROLLER:**

- i) The charge controller should be MPPT (Micro Controller based charger) type with charging efficiency > 95%. Manufacturer must have in house NABL accredited testing facility to prove the efficiency as per standards.
- ii) The 12V MPPT solar charge control unit of minimum 5A rating and TC of + 65 degree°C with digital display of voltage and current battery panel load and battery state of charge.
- iii) The charge controller should have USP pot (integrated with solar charge controller unit) for mobile charging.
- iv) The charge controller shall conform to IEC 60068 or MNRE standard.
- v) The charge controller no load current shall be less than 10mA.
- vi) The enclosure shall be IP 65
- vii) The charge controller shall be protected with auto resettable reverse polarity and short circuits protection for both battery and panel side.
- viii) The charge controller shall have a temperature compensated set points for charging.
- ix) To get the maximum charging of battery, the PV array disconnect and connect points should be set properly.
- x) Protection against polarity reversal of PV array and battery, over current short circuit, deep discharge input voltage and blocking diode protection against battery right time leakage through PV Module must be provided.

**10. ELECTRONICS PROTECTION:**

- 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 protected against short circuit conditions

- iv) Protection for reverse flow of current through the PV module(s) should be provided
- v) Electronics should have a temperature compensation for proper charging of the battery throughout the year.
- vi) Load reconnect should be provided at 80% of the battery capacity status.
- vii) Adequate protection should be provided against battery reverse polarity

**11. MECHANICAL COMPONENTS:**

- i) Corrosion resistant metallic frame structure (with hot dip galvanized) should be provided to hold the SPV module.
- ii) The frame structure should have provision to adjust its angle of inclination to the horizontal, so that it can be installed at the specified tilt angle.
- iii) The height of the pole should be 7.5 metres above the ground level, after grouting and final installation.
- iv) The pole should be made of galvanized steel Tubular (GI) pipe
- v) The specification of the Galvanised Pole shall be as (1).Type of pole:SP-4 (2). Length-5metres,(3)Length of sections-Bottom-4.5M,Middle-1.5M,Top-Outside diameter & thickness of section----- Bottom MM -114.3x3.65, Middle MM—88.9x3.25, Top MM—76.1x3.25.
- vi) The pole should have the provision to hold luminaire
- vii) It should be possible to mount the light source on a metallic arm attached to the pole. The metallic arm for holding the light assembly should be extended from the pole and set at a suitable angle to maximize uniform illumination of desired level over the specified area.
- viii) A vented metallic box with acid proof corrosion resistance paint for housing the storage battery outdoors with provision of secured locking arrangement should be provided.

**12. INDICATORS:**

- i) The system have two indicators, GREEN and RED.
- ii) 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.
- iii) Red indicator should indicate the battery “Load cut off” condition.



**13. QUALITY AND WARRANTY:**

- i) The Street Lighting System (including the battery) will be warranted for a period of 5 (five) years from the date of supply.
- ii) 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 less than 90% at the end of the 10(ten) years and 80% at the end of Twenty five(25) years.
- iii) The warranty card to be supplied with the system must contain the details of the system.
- iv) Operation and Maintenance Manual:  
An operation, Instruction And Maintenance Manual, in English and the local language should be provided with the solar street lighting system.  
**The following minimum details must be provided in the Manual.**
  - i) Basic principles of Photovoltaic
  - ii) A small write-up (with block diagram) on solar street lighting system, its components, PV module, battery electronics and luminaire and expected performance.
  - iii) Type, Model Number, Voltage and Capacity of the battery, used in the system.
  - iv) The make, model number, country of origin and technical characteristics (including IESNA LM-80 report) of W-LEDs used in the lighting system.
  - v) About charging and significance of indicators
  - vi) Clear instructions about erection of pole and mounting of PV module(s) and lamp housing assembly on the pole
  - vii) Clear instructions on regular maintenance and trouble shooting of the solar street lighting system.
  - viii) DO's and DONT's
  - ix) Name and address of the contact person for repair and maintenance, in case of non-functionality of the solar street lighting system.

## TECHNICAL DATA SHEET

### B.SPV STREET LIGHTING SYSTEM

<b>GUARANTEED TECHNICAL PARTICULARS: Solar Street Lighting (LED Based System).</b>		
Sl. No	Description	Proposed specification
	<b>Name of Manufacturer:</b>	
	<b>Name of Bidder:</b>	
1.	Duty Cycle	
2.	Wind speed resistance of system	
	<b>ELECTRONICS:</b>	
3.	Luminaire	
4.	LED lamp/batten make	
5.	LED lenses	
6.	Total lumen output	
7.	System wattage (LED + Driver)	
8.	Luminaire efficacy per watt	
9.	Driver type	
10.	Driver efficiency	
11.	Driver current	
12.	Luminaire housing	
13.	Ingress Protection	
14.	Luminaire arm	
15.	Dimming facility	
16.	Applicable Standard	
	<b>SPV MODULE:</b>	
17.	Applicable Standard	
18.	Material structure of solar cell	
19.	VOC	
20.	Minimum power at Vmax	
21.	Cell efficiency	
22.	Country of manufacture	
23.	Mounting frame	
	<b>BATTERY:</b>	
24.	Make (as per test report)	
25.	Type of battery	
26.	Capacity	
27.	Permitted depth of discharge	
28.	Reference of IS No.	
29.	Ampere hour efficiency	
30.	Watt hour efficiency	

31.	Type test certificate	
32.	Battery system back-up	
	<b>BATTERY BOX:</b>	
33.	Battery box material and protection	
34.	Battery box protection	
35.	Battery box support structure	
	<b>POLE:</b>	
36.	Type	
37.	Height	
38.	Thickness	
39.	Mass of zinc coating in grams per square metre)	
40.	Applicable Standard	
	<b>CHARGE CONTROLLER:</b>	
41.	Rating	
42.	Type	
43.	Temperature compensated charging	
44.	Efficiency	
45.	Enclosure for charge controller	
46.	No load current	
	<b>INBUILT PROTECTIONS:</b>	
47.	Overcharge protection for battery	
48.	Deep discharge protection for battery	
49.	Reverse polarity protection for panel and battery	
50.	Temperature compensated charging for battery	

Yours faithfully,

(Signature of Authorized Signatory)

Name :

Designation:

Company Seal :

## **COMPREHENSIVE MAINTENANCE CONTRACT CMC FOR 5(FIVE) YEARS.**

### **1. THE COMPREHENSIVE MAINTENANCE CONTRACT (CMC).**

- i) The CMC shall include servicing and replacement guarantee for all parts and components of solar home lighting system (LED based) and solar street lighting system (LED based) system for 5 years from the date of complete commissioning. However for PV module, it shall be for 25 years.
- ii) The maintenance service provided shall ensure proper functioning of the SPV system as a whole. All preventive/routine maintenance and breakdown/corrective maintenance required for ensuring maximum efficiency shall have to be provided by the company. Accordingly, CMC shall have two distinct components as described below:-

### **2. Breakdown/corrective Maintenance:**

- i) Whenever a complaint is lodged by the user, the bidder shall attend to the same within a reasonable period of time (1 day) and in any case the breakdown shall be corrected within a period not exceeding two days from the date of complaint.
- ii) The bidder shall maintain the following facilities at the local service centre for ensuring highest level of services to the end user.
  - a) Adequately provisions of record keeping, which shall enter alia, include the following:
    - i) Details of system supplied within the command area of the service station including full name and sub-system serial number and records of routine maintenance carried out (duly signed by the end users). These records shall include voltage, current, specific gravity, indicator charge, full flow, charge controller, operation, electronics etc.
    - b) History record sheets of maintenance done
    - c) The service centre shall send summary service reports to MNREDA on quarterly basis : These reports shall include the following information.
      - i) Number of systems working satisfactorily on reporting date.
      - ii) Number of system covered by the service centre
      - iii) Number of complaints received during the period of reporting
      - iv) Number of complaints attended during the period of reporting
      - v) Major cause of failure as observed
      - vi) Major replacement made during the reporting period
      - vii) Separate report shall be submitted for the whole system

3. The records maintained at the service centre shall be made available from time to time to MNREDA.
4. The date of CMC maintenance shall begin on the date of full actual commissioning of the entire SPV system comprising of solar home lighting system along with solar street lighting system(LED based) under DDG of DDUGJY scheme in the State of Meghalaya.
5. The contractor is to set up offices/service centres including deployment of requisite manpower, vehicles and other infrastructure for the purpose of the 5(five) years CMC, suitably at the vicinity of the MNREDA headquarter and as per the requirement to oversee and maintain the project for smooth interface with MNREDA, the contractor and the end uses on day to day basis.
6. Bidder shall furnish details of infrastructure that are intended to set up/presently available for establishing of service centre.

**FORMAT FOR SUBMITTING OF GUARANTEE CARD TO BE SUPPLIED WITH EACH HOME LIGHTING SYSTEM(LED BASED) AND SOLAR STREET LIGHTING SYSTEM (LED BASED).**

Letter No. \_\_\_\_\_

Date \_\_\_\_\_

To,

The Director,  
Meghalaya Non-Conventional and Rural Energy  
Development Agency, Shillong.

Subject :Guarantee Card to be supplied with each solar home lighting system (LED Based) and solar street lighting (LED Based) System.

Ref. No. LOA No. \_\_\_\_\_ dated \_\_\_\_\_

Dear Sir,

I do hereby undertake to furnish the Guarantee Card to be supplied with each solar home lighting (LED Based) along with solar street lighting (LED Based) System as per the prescribed format as indicated below, in case of award of contract.

**Guarantee Card (LED Solar Home Lighting System):**

1.		Name & Address of the Manufacturer of the System	
2.		Name & Address of the Purchasing Agency	
3.		Date of supply of the system	
4.		Date of PV Module(s) supplied in the system	
	(a)	Name of the Manufacturer	
	(b)	Make	
	(c)	Model	
	(d)	Serial No.	
	(e)	Wattage of the PV Module(s) under STC	
	(f)	Guarantee valid upto	
5		Details of Battery	
	(a)	Name of the Manufacturer	
	(b)	Make	
	(c)	Model	
	(d)	Batch/Serial No.(s)	
	(e)	Month & Year of Manufacture	
	(f)	Rated V & AH Capacity at C/10 rated at 27°C	
6		Details of Charge Controller	
	(a)	Name of the Manufacturer	
	(b)	Make	
	(c)	Model	
	(d)	Serial No.(s)	
	(e)	Month & Year of Manufacture	
	(f)	Guarantee valid upto	

7	Details of luminaire (LED Light Batten)		
	(a)	Name of the Manufacturer	
	(b)	Make	
	(c)	Model	
	(d)	Serial No.(s)	
	(e)	Month & Year of Manufacture	
	(f)	Guarantee valid upto	
8	Details of solar panel mounting structures and other BOS Items		
	(a)	Name of the Manufacturer	
	(b)	Make	
	(c)	Model	
	(d)	Serial No.(s)	
	(e)	Month & Year of Manufacture	
	(f)	Guarantee valid upto	
9.	Designation & Address of the person to be contacted for claiming guarantee obligations		

**Guarantee Card (LED Solar Street Lighting System):**

1.		Name & Address of the Manufacturer of the System	
2.		Name & Address of the Purchasing Agency	
3.		Date of supply of the system	
4.		Date of PV Module(s) supplied in the system	
	(a)	Name of the Manufacturer	
	(b)	Make	
	(c)	Model	
	(d)	Serial No.	
	(e)	Wattage of the PV Module(s) under STC	
	(f)	Guarantee valid upto	
5		Details of Battery	
	(a)	Name of the Manufacturer	
	(b)	Make	
	(c)	Model	
	(d)	Batch/Serial No.(s)	
	(e)	Month & Year of Manufacture	
	(f)	Rated V & AH Capacity at C/10 rated at 27°C	
6		Details of Charge Controller	
	(a)	Name of the Manufacturer	
	(b)	Make	
	(c)	Model	
	(d)	Serial No.(s)	
	(e)	Month & Year of Manufacture	
	(f)	Guarantee valid upto	
7		Details of luminaire (LED Light Batten)	
	(a)	Name of the Manufacturer	
	(b)	Make	
	(c)	Model	
	(d)	Serial No.(s)	
	(e)	Month & Year of Manufacture	
	(f)	Guarantee valid upto	
8		Details of solar panel mounting structures and other BOS Items	
	(a)	Name of the Manufacturer	
	(b)	Make	
	(c)	Model	
	(d)	Serial No.(s)	
	(e)	Month & Year of Manufacture	
	(f)	Guarantee valid upto	
9.		Designation & Address of the person to be contacted for claiming guarantee obligations	

Yours faithfully,

(Signature of Authorized Signatory)

Name :

Designation :

Company seal:



**FORMAT FOR SUBMITTING OF GUARANTEED TECHNICAL PARTICULARS FOR GALVANIZED STEEL TUBULAR POLES (7.5 METERS).**

**Guaranteed Technical Particulars for Galvanized Steel Tubular Poles (7.5 meters)**

Sl. No.	Particulars	SP-4
		7.5 M
1.	Manufacturer's Name & Address:	
2.	Type of Pole offered	
3.	a)Whether tubes are of seamless constn. Or welded type	
	b)Is it ERW tubes? If so, state name/address of manufacturer	
4.	Overall length	
5.	Effective length of section	
	a) Bottom	
	b) Middle	
	c) Top	
6.	Effective dia thickness of section	
	a) Bottom	
	b) Middle	
	c) Top	
7.	Approximate weight (kg)	
8.	Breaking Load(Kg)	
9.	Working Load(Kg)	
10.	Weight/Mtr.	
	i) Bottom (Kg)	
	ii) Middle Section (kg)	
	iii) Top Section (kg)	
11.	Crippling load (kg)	
12.	Load for permanent set	
13.	Load for temporary deflection	
14.	Joint length	
15.	Drop Test (Height 2 mtrs)	
16.	Earthing hole diameter	
17.	Hot dip Galvanization (minimum mass of zinc coating grams per square metre)	
18.	Base plate and cap size	

(Signature of Authorized Signatory)

Name :

Designation:

Company seal:

## CONTRACT AGREEMENT

### PREAMBLE:

Contract for Electrification of 41 Remote Villages by design, supply, installation and commissioning including comprehensive Maintenance Contractor (CMC) for 5(five) years through SPV Home Lighting System (LED based) with integration of SPV street lighting system (LED based) under DDG scheme of DDUGJY project in the state of Meghalaya.

This Contractor Agreement made on this \_\_\_\_\_ day of \_\_\_\_\_ 2016.

Meghalaya Non-Conventional and Rural Energy Development Agency (MNREDA) having its office at Near BSF Camp, Mawpat, Shillong-793012, East Khasi Hills District, Meghalaya, India, hereinafter to as the 'PURCHASER' which term or expression unless excluded by or repugnant to the context or the meaning thereof, shall be deemed to includes to successors and permitted assigns, OF THE ONE PART.

“AND”

M/s. \_\_\_\_\_ having its office at \_\_\_\_\_, (hereafter referred to as “SUPPLIER” which term or expression unless excluded by or repugnant to the context or meaning thereof shall be deemed to include its succession and permitted assigns) ON THE OTHER PART.

### AND WHEREAS:

- a) The 'PURCHASER' has decided to award the contract work of the electrification of 103 Remote villages by design, supply, installation and commissioning through SPV home lighting system (LED based) with integration of SPV street lighting system (LED based) including Comprehensive Maintenance Contract (CMC) for 5(five) years under DDG scheme of DDUGJT project in the state of Meghalaya.
- b) The 'SUPPLIER' has declared that he has valuable specialized knowledge and expertise to Manufacturer, shop testing, packing, forwarding, transportation, transit Insurance, supply, testing and commissioning of \_\_\_\_\_ SPV street lighting system (LED based) on the terms and conditions contained in its letter of Award No. \_\_\_\_\_ dated \_\_\_\_\_ and the documents referred to therein the award has taken effect from aforesaid letter of award. The terms and expressions and in this Agreement shall have the meaning as are assigned as are assigned to then in the Contract Documents referred to in the succeeding article.
- c) The 'SUPPLIER' has agreed to undertake the aforesaid work as per the specification and the terms and conditions of the PURCHASER.
- d) The SUPPLIER has accepted the tender of the PURCHASER for the aforesaid work and on the basis of above declaration of the supplier, has decided to enter into his agreement with the PURCHASER.

**NOW IT IS HEREBY AGREED AND DECLARED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:**

Article-1

- I. In consideration of the total contract price of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_) only and as per details specified in Purchase Order to be paid by the PURCHASER to the SUPPLIER for scope of work and services the SUPPLIER hereby covenants with the PURCHASER to perform the work detailed in Purchaser Order and Technical Specification.
- II. Subject to the provisions of this contract, completion of the work within the stipulated time is the essence of the contract. The SUPPLIER shall arrange to effect deliveries of the materials, facilities and other services under this contract within the time schedule and in such manner that the completion of all items of work shall be synchronized in such a way that the overall schedule of the various items specified in the contract is observed and adhered to.
- III. Notwithstanding the approval accorded by the PURCHASER to the appointment of any sub-Suppliers including those which may be specified in the contract, the SUPPLIER shall be solely responsible for the completion of the work as per specifications and within the time schedule agreed in this contract. Approval of any sub-Supplier by PURCHASER shall not relieve SUPPLIER from any of his liabilities or obligations under the contract and he shall be responsible for the acts, defaults and neglects of any sub-Supplier as fully as if they were the acts, defaults or neglects of SUPPLIER.
- IV. The Supplier shall be performed strictly as per the terms and conditions stipulated herein and in the following documents (hereinafter referred to as "Contract Document")

Article-2

The contract price is inclusive of all applicable charges, insurance, freight, TOT, Octroi, Excise Duty, Professional Tax, VAT and all the other taxes and duties.

Article-3

This contract shall come into effect from the date of Purchase Order.

Article-4.

In case of any failure in the due performance of the contract to deliver any part of the equipment or complete the work within the time fixed under the contract or any extension thereof granted to him by MNREDA and to fulfil his obligations in time under the contract, he shall be liable to pay MNREDA liquidated damaged as mentioned in the Purchase Order.

#### Article-5

The following documents shall form and be read and construed as an integral part of this contract: Purchase Order No.MNREDA/\_\_\_\_\_.

#### Article-6

The supplier/contractor also agrees to provide, the Purchase with the necessary facilities for carrying out inspection, quality audit and quality surveillance of the contractors and its sub-contractor which shall include but not limited to the following :-

- i) Relevant plan standards, drawing and procedures
- ii) Detailed Quality Assurance System manuals for manufacturing activities

#### Article-7

- i) Liquidated damage for delay in completion. If the firm fails to perform the works with respect to the successful supply, erection and completion of testing and commissioning of the equipment under the contract within the period as specified in the letter of award for the whole of the work or as applicable for any part of the work or any time extension granted by the Purchaser, the supplier/contractor shall pay to the purchaser as liquidated damage and not as penalty @ 0.5% (half percent) of the total contract price for the package for each week delay or part thereof in the handing over of the respective work.
- ii) The above payment of liquidated damage shall be subjected to a maximum of 5% (five percent) of the total contract price.

#### Article-8

All notices under this contract shall be given in writing and shall be deemed sufficiently given when delivered either in person or by telegram, fax/telex or registered mail or courier addressed to the other party at its address set forth in the preamble to this contract with a copy to the nominated representative at site.

#### Article-9

This contract is executed in English language.\

#### Article-10

The contract shall subject to the exhaustive jurisdiction of the courts under the Meghalaya Higher Court at Shillong.

IN WITNESS HEREOF the Parties hereto by representatives duly authorized have executed the contract on the day, month and the year first above written.

Signature

Signature

For and on behalf of Supplier

For and on behalf of

Meghalaya Non-Conventional and Rural  
Energy development Agency.

(Seal of the office)

(Seal of the office)

In the Presence of:

In the Presence of:

1.

1.

2.

2.

## **BANK GUARANTEE FOR CONTRACT PERFORMANCE**

(To be stamped in accordance with Stamp Act)

(The stamp paper should be in the name of issuing bank)

Bank Guarantee No.Date :

Name of the Contract : Electrification for 41 remote village through SPV Home Lighting System with integration of SPV Street Lighting System (LED based) including 5 years Comprehensive Maintenance Contract (CMC) under DDG of DeenDayalUpadhay Gram JyotiYojana (DDUGJY) project in the State of Meghalaya.

To,

Member Secretary-cum-Director,  
Meghalaya Non-Conventional and Rural Energy  
Development Agency (MNREDA),  
Near BSF Camp, Mawpat, Shillong-793012.

Dear Sir,

In consideration of the MNREDA Meghalaya Non-Conventional and Rural Energy Development Agency (hereinafter referred to as the (MNREDA) which expression shall unless repugnant to the context or meaning thereof includes its executers, administrators, successors and assigns) having accepted offer of Supply Installation Testing Commissioning(SITC) of Solar Project of SP Home Lighting System and Street Lighting System\_\_\_\_\_Nos. at \_\_\_\_\_ by M/s.\_\_\_\_\_with its Registered/Head Office at \_\_\_\_\_(hereinafter referred to as "Supplier", which expression shall unless repugnant to the context or meaning thereof includes its executers, administrators, successors and assigns) a contract by issue of (MNREDA) Letter of Award No.\_\_\_\_\_Dated\_\_\_\_\_ and the same having been unequivocally accepted by the Supplier resulting in a "Contract" bearing No.\_\_\_\_\_for Supply Installation Testing Commissioning(SITC) of Solar Project of\_\_\_\_\_Nos. at\_\_\_\_\_and the Supplier having agreed to provide a contract performance guarantee for the faithfull performance of the entire contract equivalent to Rs.\_\_\_\_\_ ( in figure and words).

Whereas the above said Letter of Award being assigned by MNREDA Authority Signatory (hereinafter referred to as the “MNREDA”, which expression shall unless repugnant to the context or meaning thereof includes its executers, administrators, successors and assigns) vide MNREDA’s , letter No. \_\_\_\_\_ dated \_\_\_\_\_ w.e.f. 01.01.2015 and accepted by the Supplier, thereby requiring the Contract Performance Guarantee for the same amount to be issued in favour of MNREDA.

We \_\_\_\_\_ (Name & Address), having our Head office at \_\_\_\_\_ and Branch office at \_\_\_\_\_ (hereinafter referred to as “Bank”, which expression shall unless repugnant to the context or meaning thereof includes its executers, administrators, successors and assigns) do hereby guarantee and undertake to pay promptly to MNREDA, on demand any and all monies payable by the Supplier to the extent of \_\_\_\_\_ as aforesaid at any time upto \_\_\_\_\_ (DD/MM/YYYY) without any demur, reservation, contest, recourse or protest and/or without any reference to the Supplier. Any such demand made by MNREDA on the Bank shall be conclusive and binding notwithstanding any difference between the MNREDA and the Supplier or any dispute pending before any court, tribunal or any other authority. The bank undertakes not to revoke this Bank guarantee during its currency without previous consent of the MNREDA and further agrees that the guarantee herein contained shall continues to be enforceable till the MNREDA discharges this guarantee.

The MNREDA shall have the fullest liberty without affecting in anyway the liability of the bank under this guarantee from time to time to extend the time for performance of the contract by the Supplier. The MNREDA shall have the fullest liberty, without affecting this guarantee to postpone from time to time the exercise of any powers, vested in them or of any right which they might have against the Supplier, and to exercise the same at any time any manner, and whether to enforce or to forbear or to enforce any covenants, contained or implied, in the contract between MNREDA and the Supplier or any other course of remedy or security available to the MNREDA. The Bank shall not be released of its obligation under these presents by any exercise by the MNREDA of its liberty with reference to the matters aforesaid or any of them or by a reason of any other acts of omission or commission on the part of the MNREDA or any other indulgence shown by the MNREDA or by any other matters or thing whatsoever which under law would, but for this provision, have the effect of relieving the bank.

The bank also agrees that the MNREDA at its option shall be entitled to enforce this guarantee against the bank as a principal debtor, in the first instance without proceeding against the Supplier and notwithstanding any security or other guarantee that the MNREDA may have in relation to the Supplier's liabilities.

Notwithstanding anything contained herein above our liability under this guarantee is restricted to \_\_\_\_\_ and it shall remain in force upto and including \_\_\_\_\_ and shall be extended from time to time for such period, as may be desired by M/s. \_\_\_\_\_ on whose behalf this guarantee has been given.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_ at \_\_\_\_\_

Witness. 1.

Signature \_\_\_\_\_ (Signature) \_\_\_\_\_

Name \_\_\_\_\_ Bank Rubber Stamp

Official Address \_\_\_\_\_

\_\_\_\_\_ Name \_\_\_\_\_

\_\_\_\_\_

(Designation with Bank Stamp) \_\_\_\_\_

Witness. 2.

Signature \_\_\_\_\_ Attorney as per Power of Attorney No. \_\_\_\_\_

Name \_\_\_\_\_ Dated \_\_\_\_\_

Official Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



Letter No.....

Date:.....

To,

The Director (MNREDA)

MEGHALAYA NON-CONVENTIONAL AND RURAL ENERGY

DEVELOPMENT AGENCY

Near B.S.F. Camp, Mawpat, P.O. Mawpat, Shillong – 793 012

**Sub: Certificate of the delivery of the Solar Home Lighting (LED Based) and Solar Street Lighting (LED based) System.**

Ref No.    LOA No.: \_\_\_\_\_ Date: \_\_\_\_\_

Dear Sir,

I do hereby undertake to furnish the Certificate of Delivery of the Solar Home Lighting (LED Based) and Solar Street Lighting (LED based) System as per prescribed format as indicated below, to the concerned Project Officer, in case of award of contract.

SI	Particulars of the Material Supplied	Units	Quantity Supplied

Yours faithfully,

(Signature of Authorised Signatory)

Name

Designation

Company Seal

Letter No.....

Date:.....

To,

The Director (MNREDA)  
MEGHALAYA NON-CONVENTIONAL AND RURAL ENERGY  
DEVELOPMENT AGENCY  
Near B.S.F. Camp, Mawpat, P.O. Mawpat, Shillong – 793 012

**Sub: Location wise Installation of the Solar Home Lighting (LED based) & Solar Street Lighting (LED based) system**

Ref No.    LOA No.: \_\_\_\_\_ Date: \_\_\_\_\_

Dear Sir,

I do hereby undertake to furnish the **Location wise Installation of the Solar Home Lighting (LED based) & Solar Street Lighting (LED based) system** as per the prescribed format as indicated below, to the concerned Project Officer, in case of award of contract.

**(A) Solar Home Lighting (LED based) System:**

Sl. No.	Location	Department Name	Module			Battery			Charge Controller			Date of Installation	Altitude	Latitude	Longitude
			Number	Make	Year of Manufacturer	Number	Make	Year of Manufacturer	Number	Make	Year of Manufacturer				

### Details of Work Orders Received and Executed in Past 3 Years

Letter No.....

Date:.....

To,

The Director (MNREDA)

MEGHALAYA NON-CONVENTIONAL AND RURAL ENERGY

DEVELOPMENT AGENCY

Near B.S.F. Camp, Mawpat, P.O. Mawpat, Shillong – 793 012

**Sub: Details of Work Orders Received and Executed in Past 3 Years**

Ref No. NIB No.: \_\_\_\_\_ Date: \_\_\_\_\_

Dear Sir,

I am furnishing below the details of work orders received and executed by the bidder for supply and installation of Solar Projects executed during last three years.

SI	Name of Agency/Organisation	Work Order No.&Date	Ordered Qty.	Name of Model	Work Order Value (Rs. in Crores)	Date of Commencement:	Date of Completion of Supply & Erection	Whether completed in schedule time

Yours faithfully,

(Signature of Authorised Signatory)

Name

Designation

Company Seal

Note:

(a) Attach Photocopies of Work Orders duly attested by Notary Public.

(b) Attach Photocopies of Certificate of Satisfactory Performance issue by concerned agency/organisation duly attested by Notary Public

### Information about the Bidding Form

NIB No.:-----

Date:-----

1	Name of Bidder	
2	Postal Address	
3	Mobile no.	
4	Telephone, Telex, Fax No	
5	E-mail	
6	Web site	
7	Name, designation and Mobile Phone No. of the representative of the Bidder to whom all references shall be made	
8	Name and address of the Indian/foreign Collaboration if any	
9	Have anything/extra other than price of items (as mentioned in price Schedule) been written in the price schedule.	
10	Have the Bidder to pay arrears of income tax? If yes up to what amount?	
11	Have the Bidder ever been debarred by any Govt. Deptt. / Undertaking for undertaking any work?	
12	Monthly supply capacity ( attach supporting document)	
13	Details of offer (please mention number of pages and number of Drawings in the hard copy)	
14	Reference of any other information attached by the tenderer (please Mention no. of pages & no. of drawings)	
15	Is bidder involved in any Litigation	

( Signature of Bidder with Seal)

Name:

Designation

Company Seal

**Authority Letter for signing bid document & attending bid meetings**

Letter No.....

Date:.....

To,

The Director (MNREDA)

MEGHALAYA NON-CONVENTIONAL AND RURAL ENERGY

DEVELOPMENT AGENCY

Near B.S.F. Camp, Mawpat, P.O. Mawpat, Shillong – 793 012

**Sub: Authority Letter for signing bid document & attending bid meetings**

Ref No. NIB No.: \_\_\_\_\_ Date: \_\_\_\_\_

Dear Sir,

I do hereby authorize .....(Name & Designation) to sign the bid document or any document forming part of the bid and to attend the bid meeting to be held from time to time on our behalf.

He/She is also authorised to provide clarifications/confirmations, if any, & such clarifications/confirmations shall be binding on us. The specimen signature of ..... is attached below:

(Specimen Signature)

(Signature of Authorised Signatory)

Name.....Name.....

Designation.....Designation.....

Seal

Seal

Yours faithfully

(Signature of Authorised Signatory)

Name

Designation

Company Seal

**(Manufacturer's Letterhead)**

Letterhead No.....

Date.....

**Manufacturer's Authorization Format**

Reference Notice Inviting Bid No.: \_\_\_\_\_

Date:\_\_\_\_\_

To:

**The Director,  
Meghalaya Non-Conventional and Rural Energy  
Development Agency, Shillong.**

Dear Sir,

WE [insert: **name of Manufacturer**] who are established and reputable manufacturers of [insert: **name and/or description of the Goods**] having production facilities at [insert: **address of Factory**] do hereby authorize [insert: **name & address of Authorized dealer/Contractor**] (hereinafter, the "Bidder") to submit a bid, the purpose of which is to provide the following goods, manufactured by us, and to subsequently negotiate and sign the Contract for the **Implementation of Village electrification through installation of Solar Home Lighting(LED Based) along with Solar Street Lighting (LED Based) including 5 years Comprehensive Maintenance Contract (CMC) under DDG, the sub scheme under Deen Dayal Upadhyay Gram Jyoti Yojana (DDUGJY) project in the state of Meghalaya on Build, Operate, Maintain & Transfer (BOMT) basis:**

- 1. ....
- 2. ....
- 3. ....
- .....

We hereby extend our full guarantee or warranty in accordance to the tender for the above specified Goods supporting the Supply of specified Goods and fulfilling the related Erection Services by the Bidder as per the Bidding Document, and duly authorize the said Bidder to act on our behalf in fulfilling these guarantee and warranty obligations.

Further, we also hereby declare that we and ....., [insert: **name & address of Authorized dealer / Contractor** ] (hereinafter, the "Bidder") have entered into an Internal Agreement in which, during the duration of the Contract (**including related services and warranty/ defects liability**) we, the Manufacturer, will make our technical and engineering staff fully available to the technical and engineering staff of the successful Bidder to assist that Bidder, on a reasonable and best effort basis, in the performance of all its obligations to the MNREDA under the Contract.

For and on behalf of the Manufacturer

Signature \_\_\_\_\_

Name \_\_\_\_\_

Designation \_\_\_\_\_

Contact Number(s): Tel. \_\_\_\_\_ Mobile \_\_\_\_\_

Email \_\_\_\_\_

Common Seal of the Manufacture \_\_\_\_\_

FORMAT FOR AGREEMENT BY THE MANUFACTURER ALONG WITH THE BIDDER.

(To be submitted in Rs.100/- Non-Judicial Stamp Paper to be purchased in the name of executants).

(To be stamped in accordance with stamp Act)

THIS INTERNAL AGREEMENT was executed this ..... day of..... Two thousand and..... by M/s. ...., a Company incorporated under the laws of ..... And having its Registered Office at..... (hereinafter called the "Manufacturer" which expression shall include its successors, executors and permitted assigns), and M/s. ...., a Company incorporated under the laws of ..... having its Registered Office at ..... (hereinafter called the "Bidder", which expression shall include its successors, executors and permitted assigns).

WHEREAS the "Employer" XXXX (Name of the Employer), a Company incorporated under the Companies Act of 1956/2013 (with amendment from time to time) having its registered office at XXXX (Registered Address of the Employer) (hereinafter called the "Employer" which expression shall include its successors, executors and permitted assigns) invited Bid as per its NIB No..... Dated.....for the implementation of Village electrification through installation of Solar Home Lighting (LED Based) along with Solar Street Lighting (LED Based) including 5 years Comprehensive Maintenance Contract (CMC) under DDG, the sub scheme under Deen Dayal Upadhyay Gram Jyoti Yojana (DDUGJY) project in the state of Meghalaya on Build, Operate, Maintain & Transfer (BOMT) basis.

AND WHEREAS Clause No. 2, Section: Instruction to Bidders, forming part of the Bid Documents inter-alia stipulates that the manufacturer and authorized dealer / contractor, must fulfil the qualifying Requirements and be jointly and severally bound and responsible for the quality and timely execution of the aforesaid DDG works under DDUGJY project in the event the Bid submitted by the Bidder is accepted by the Employer resulting in a Contract.

AND WHEREAS the Bidder has submitted its Bid to the Employer vide Proposal No.....dated.....based on the authorization by the Manufacture for execution of the aforesaid DDG works under DDUGJY project.

NOW THEREFORE THIS AGREEMENT WITNESSETH as under:

1.0 In consideration of the award of Contract by the Employer to the Bidder (hereinafter referred to as the "Contract") we, the Manufacturer and the bidder do hereby declare that we shall be of jointly and severally bound unto the MePDCL (Name of the Employer), for the Implementation of Village electrification through installation of Solar Home Lighting (LED Based) along with Solar Street Lighting (LED Based) including 5 years Comprehensive Maintenance Contract (CMC) under DDG, the sub scheme under Deen Dayal Upadhyay Gram Jyoti Yojana (DDUGJY) project in the state of Meghalaya on Build, Operate, Maintain & Transfer (BOMT) basis.



2.0 Without in any way affecting the generality and total responsibility in terms of this Agreement the Manufacturer hereby agrees as follows to ensure proper quality, manufacture, testing and supply on FOR destination delivery at site basis and successful execution of the aforesaid DDG works under DDUGJY project in accordance with Contract Specifications:

- i) To provide supporting data towards technical information of equipment manufactured, testing reports, performance certificates etc as per requirement of the tender.
- ii) To provide supporting data towards manufacturer's experience, such as, copies of Procurement Orders, balance sheet, profit and loss Statement etc as per requirement of the tender.
- iii) To provide Letter of Authority.
- iv) To supply equipment and self manufactured items including inspection of same as per requirement of the tender.
- v) To depute skilled Engineer(s) to the Employer's Project site from time to time for project supervision, testing and commissioning.

3.0 Without in any way affecting the generality and total responsibility in terms of this Agreement, the **Bidder** hereby agrees as follows to ensure proper quality, manufacture, testing and supply on FOR destination delivery at site basis and successful execution of the aforesaid **DDG works under DDUGJY project** in accordance with Contract Specifications.

- I. To prepare the total bid as per the requirement mentioned in the bid documents.
- II. To arrange for submission of bid security to the MePDCL at the time of tender.
- III. To carry out Commercial and administrative functions such as liaison with MePDCL, arranging for inspection, dispatch instructions, payment from MePDCL etc.
- IV. To ensure supply, erection and five years comprehensive maintenance of the project as per scope of the tender.
- V. To arrange for submission of Contract Performance Guarantee.
- VI. To ensure Guarantee / Warranty obligations of supplied materials.

4.0 This Agreement shall be construed and interpreted in accordance with the laws of India and the Courts in SHILLONG (Headquarter of Employer) shall have exclusive jurisdiction in all matters arising under the Agreement.

5.0 We, the **Manufacturer and Bidder** agree that this Agreement shall be irrevocable and shall form an integral part of the Contract and further agree that this Agreement shall continue to be enforceable till the Employer discharges it. It shall become operative from the effective date of Contract.

IN WITNESS WHEREOF the **Manufacturer and Bidder** have through their Authorised Representatives executed these presents and affixed Common seals of their respective Companies, on the day, month and year first above mentioned.

For and on behalf of the Manufacturer

For and on behalf of the **Bidder**

Signature\_\_\_\_\_

Signature\_\_\_\_\_

Name\_\_\_\_\_

Name\_\_\_\_\_

Designation\_\_\_\_\_

Designation\_\_\_\_\_

Contract Numbur(s): Mobile \_\_\_\_\_

Contract Numbur(s): Mobile\_\_\_\_\_

Email\_\_\_\_\_

email\_\_\_\_\_

Common Seal of the Manufacturer\_\_\_\_\_

Common Seal of the Bidder\_\_\_\_\_

Note:

1. This Deed of joint Undertaking duly attested by Notary Public of the place(s) of the respective executant(s), shall be submitted along with the bid.
2. In case the bid is submitted by a joint venture (JV) of two or more firms as partners, then the joint deed of undertaking shall be modified accordingly.

# **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](mailto:mnreda.dir@gmail.com) Website: [www.mnreda.gov.in](http://www.mnreda.gov.in)

## **PART – B**

## **FINANCIAL BID**

# 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](mailto:mnreda.dir@gmail.com) Website: [www.mnreda.gov.in](http://www.mnreda.gov.in)

## PART – B

### FINANCIAL BID

No.MNREDA/1658/2015/

Dated Shillong, the \_\_\_\_\_ 2016.

#### 1. SPV Home Lighting System :

Sl. No.	Items	unit	Quantity	Rate (Rs.)	Amount (Rs.)
1.	Supply of components and parts required in LED based solar home lighting system.	Nos.			
2.	Installation and commissioning of the system (in respect of complete set)	Nos.			
3.	CMC (3 years of LED based solar home lighting system.	Nos.			
	Total				

(Rupees \_\_\_\_\_)only.

**. SPV STREET LIGHTING SYSTEM:**

Sl. No.	Items	unit	Quantity	Rate (Rs.)	Amount (Rs.)
1.	Supply of components and parts required in 7W LED based solar street lighting system.	Nos.			
2.	Installation and commissioning of the systems (in respect of complete set)	Nos			
3.	CMC (3 years) of 7W LED street lighting system.	Nos.			
	Total				

(Rupees \_\_\_\_\_)only.

- Note :
1. The prices quoted above are complete in all respects as per technical specifications and inclusive of all central/state/local taxes and duties, packing, forwarding, transit, insurance, loading and unloading, transportation and other charges etc.
  2. Certified that rates quoted are as per specifications, terms and conditions mentioned in the bid document.
  3. All the materials shall be delivered within 30 (thirty) days from the date of issue of the work order.

Date :

Signature of tender

Place :

with company seal.