

**TENDER DOCUMENT
FOR
SUPPLY, INSTALLATION & COMMISSIONING OF
LED BASED SOLAR PHOTOVOLTAIC STREET LIGHTING SYSTEM
IN TRIPURA ON TURNKEY BASIS**



Prepared By:-

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Certified that the NIT Document contains _____ pages including this page



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No.F.6(214)/TREDA/NCES/16/190

Date 19/04/2017

NOTICE INVITING TENDER

Sealed tenders are invited from the bonafied, resourceful and experienced channel partners accredited by the Ministry of New & Renewable Energy (MNRE), Govt. of India for Off-Grid and Decentralized Solar Applications having SP 1A/1B/1C/2A/2B/2C grade for the work given below:

Sl. No.	PNIT No.	Name of the work	Tentative Quantity	Tender fee	Earnest Money	Time for completion
1.	No.F.6(214)/TREDA/NCES/16/191, dated 19/04/2017	Supply, installation & commissioning of Solar PV stand alone W-LED based Street Lighting Systems in Tripura using <u>Tubular GEL/VRLA Battery</u> on turnkey basis as per the specifications mentioned at Annexure – IV (A) of this NIT including 5 (five) years guarantee / warranty and OMC (25 years guarantee / warranty for SPV Module).	2200 (Two thousand two hundred) nos.	Rs. 3000/- (Rupees three thousand only)	Rs. 11,69,500/- (Rupees eleven lakhs sixty nine thousand five hundred) only	90 (ninety) days
2.		Supply, installation & commissioning of Solar PV stand alone W-LED based Street Lighting Systems in Tripura using <u>Lithium Ferro Phosphate Battery</u> on turnkey basis as per the specifications mentioned at Annexure – IV (B) of this NIT including 5 (five) years guarantee / warranty and OMC (25 years guarantee / warranty for SPV Module).	100 (one hundred) nos.			

3. The Tender Paper is available & can be downloaded from the State Govt. websites named www.tripura.gov.in & www.treda.nic.in and the same may be submitted after being duly filled in prescribed format along all required documents as mentioned in the NIT.

4. **COST OF TENDER DOCUMENT:** Rs.3000/- (Rupees three thousand) only (Non-Refundable) in the shape of Demand Draft drawn in favour of "The Director &

SIGNATURE OF BIDDER & SEAL

Chief Executive Officer, Tripura Renewable Energy Development Agency (TREDA)" on any Scheduled Bank having branches at Agartala. Cost of tender document in cash or in the shape of cheque will not be allowed.

5. EARNEST MONEY DEPOSIT (EMD): Rs. 11,69,500/- (Rupees eleven lakhs sixty nine thousand five hundred) only in the shape of or Demand Draft drawn in favour of "The Director & Chief Executive Officer, Tripura Renewable Energy Development Agency, Agartala" on any on Nationalized / Scheduled Bank guaranteed by the Reserve Bank of India. Earnest money in cash or in the shape of cheque will not be allowed. However, Government of India Undertakings will have the option of submitting EMD in the form of bank guarantee on any Scheduled Bank.

6. 2(two) part tender consisting of the following and shall be opened sequentially.

6.1 Technical Bid:

6.1.1 The Technical Bid would comprise of the following sealed envelopes in a single sealed envelope:

6.1.1.1 Envelop – I: "Technical Bid" as per Annexure – I & Annexure – II superscripting Name of Bidder, name of Work, NIT No, Original due date of opening of Bid alongwith covering letter at Annexure – III and all relevant documents mentioned in the NIT.

6.1.1.2 Envelop – II: "Cost of tender document" superscripting Name of Bidder, name of Work, NIT Number, Original due date of opening of Bid.

6.1.1.3 Envelop – III: "Earnest Money Deposit (EMD)" superscripting Name of Bidder, name of Work, NIT Number, Original due date of opening of Bid.

6.1.2 The bidding schedule for submission of Technical Bid is given at Annexure – I & Annexure - II. The bidder who's Technical Bids is found to be acceptable, settled and frozen shall be considered for opening of respective Financial Bids.

6.2 Financial Bid: In sealed cover duly marked by Envelop-IV superscripting Name of Bidder, name of Work, NIT No., Original due date of opening of Bid.

6.2.1 Financial Bid will be opened after acceptance of Technical Bid. The date of opening of Financial Bid will be intimated on the same day when Technical Bid is opened, if possible, or later.

6.2.2 The bidding schedule for submission of Financial Bid has been prescribed at **Annexure-VI(A), Annexure-VI(B), Annexure-VI(C) & Annexure-VI(D)**.

Both the Technical Bid & Financial Bid should be wrapped in a sealed single cover superscripting Name of Bidder, name of Work, NIT No., Original due date of opening of Bid etc. should be addressed to the Tendering Authority.

7 The last date of submission of Tender paper and bid document is on **15/05/2017 at 1530 hrs** and it will be opened, if possible, on the same day at **1600 hrs** in the presence of the Tenderer or their authorized representative (having valid authorization letter) who may like to be present. In case the day happens to be a holiday, the tenders will be received and opened on the next working day within the specified time.

- 8 Tenders submitted by post should be posted well in advance to avoid any delay in postal delivery. This office however shall not share any liability for postal delay. Tenders received after the due date of submission shall be liable to be rejected. Tenders received within specified time and date shall only be considered.
- 9 **Price quoted shall be written both in words and figures. All pages of the tender document shall be signed and stamped by the tenderer before submission.**
- 10 The undersigned reserves the right to accept/reject any or all the Tenders or part thereof without assigning any reason thereon.



(K K GHOSH)
Director & CEO

SIGNATURE OF BIDDER & SEAL



TERMS AND CONDITIONS:**11. DEFINITIONS:**

- 11.1 **“TENDERING AUTHORITY”** shall mean the undersigned i.e. “Director & Chief Executive Officer, Tripura Renewable Energy Development Agency, A constituent organization of Department of Science, Technology & Environment, Govt. of Tripura” with its Head office at Vigyan Bhawan, 2nd Floor, Pandit Nehru Complex, Gorkhabasti, Agartala, West Tripura District.
- 11.2 **“TREDA”** shall mean The Director & Chief Executive Officer or his representative of “Tripura Renewable Energy Development Agency, A constituent organization of Department of Science, Technology & Environment, Govt. of Tripura” with its Head office at Vigyan Bhawan, 2nd Floor, Pandit Nehru Complex, Gorkhabasti, Agartala, West Tripura District and shall also include its successors in interest and assignees.
- 11.3 The **“CONTRACTOR”** shall mean the ***Firm/ Person (whose tender has been accepted by TREDA)*** and shall include his legal representatives, successor in interest and assignees.
- 11.4 The **“CONTRACT”** shall mean supply, installation & commissioning of W-LED based Solar Photovoltaic Street Lighting System in Tripura on turnkey basis including 5 (five) years Guarantee / Warrantee and Operation & Maintenance Contract (25 years Guarantee / Warrantee for SPV Module) and shall be valid till the completion of all related works.
- 11.5 **“OPERATION & MAINTENANCE CONTRACT (OMC)”** means routine and on-call maintenance of the systems including supply of all spare parts as required for reliable operation of the systems for 5 (five) years Warranty / Guarantee period.

12. ELIGIBILITY CRITERIA:

- 12.1 The tenderer should be Channel Partners accredited by the Ministry of New & Renewable Energy (MNRE), Govt. of India for Off-Grid and Decentralized Solar Applications having SP 1A/1B/1C/2A/2B/2C grade,
- 12.2 The tenderer should not have been blacklisted or debarred by any Central/ State Government Departments / Undertaking Bodies / Autonomous Bodies from carrying out similar business during last three financial years.
- 12.3 Documents in support of eligibility must be enclosed with the tender. Offers without satisfying eligibility conditions will be out rightly rejected and no correspondence in this regard will be entertained.

13. CREDENTIALS OF THE BIDDERS:

- 13.1 The bidders themselves must have executed supply, installation & commissioning of LED based SPV Street Lighting Systems, total quantity of which in the last three financial years & current financial year as on the date of publication of the tender should be **at least 50% of the quantity mentioned in this NIT for Sl. No. 1 and at least 10% of the quantity mentioned in this NIT for Sl. No. 2.**
- 13.2 A certificate indicating name of the customer, quantity and date of work order, Cost, date of completion including the copies of relevant work/supply orders must be enclosed. Tenderer must produce proof of satisfactory completion against the indicated work/supply orders from the beneficiary organizations.
- 13.3 The proof of experience to be submitted along with the Technical Bid as mentioned above should in the name of the tenderer only. Experience of any collaborator/sister concern of the tenderer submitted as experience proof of the tenderer will not be accepted.

SIGNATURE OF BIDDER & SEAL

- 13.4 Previous credential / records of the bidder as specified above should be attached along with tender as performance certificate.

14. TEST CERTIFICATES OF SPV SYSTEMS:

- 14.1 The bidders are required to submit test certificates for W-LED based Solar Photovoltaic Street Lighting System from one of the MNRE approved / IEC / NABL Accredited Test Laboratories in compliance of the specifications laid down at Annexure – IV(A) and Annexure – IV(B) of this NIT. Certificate issued during 2014-15 or later will only be considered as valid. Test certificates issued prior to 2014-15 will not be considered as valid.
- 14.2 Certificate / Report of testing of SPV Modules confirming to IEC 61215 Edition II/BIS 14286 and IEC 61730 Part I and II from an MNRE approved / IEC / NABL / IECQ accredited Laboratory valid as on the date of opening of tender are to be submitted alongwith technical bid.
- 14.3 LM 79 Report of Luminaire & LM 80 Report of LEDs is to be submitted alongwith technical bid.

- 15. VISIT TO THE SITES OF INSTALLATION BY THE BIDDER(S):** The intending Bidder(s) shall be deemed to have visited the site and familiarized with site condition while submitting the Bid. Non-familiarity with the site conditions will not be considered a reason either for extra claims or for not carrying out the Works in strict conformity with the technical specifications or for any delay in performance.

16. SUPPLY OF MATERIALS:

- 16.1 It is a turnkey job for supply, installation & commissioning etc., as such no extra payments against any unforeseen items / works required to complete the job will be paid/allowed. The supplier should be responsible for packing, forwarding, despatching, insurance and safe delivery of materials and installation & commissioning including proper storage & handling as required at specific sites at their quoted price. Temporary storage of materials during transit or at site shall be the responsibility of the supplier at his risk and cost.
- 16.2 The maker of individual components such as SPV Module, Battery, LED, Electronics/BOS etc. of the complete system should be supplied as mentioned by the bidder in their quotations at Part – II(b) & Part – II(c) of the NIT and as per the valid Test Report submitted during submission of the tender document. For variation of any make, valid test report of the same is to be provided with prior approval of TREDA. However, TREDA reserves the right to accept/reject the variation of makers of the individual components.
- 16.3 Delivery of the complete system at site shall commence from 60th day and the work should be completed within 90th day from the date of issue of the work order.
- 16.4 The sites of installation of the systems would be handed over to the successful bidder on arrival of the materials in full at Agartala or at the District Offices, the schedule for installation & commissioning of the systems will be finalized and list of locations would be handed over for taking up the installation work.
- 16.5 Each solar street light system (SSLS) shall be identifiable with unique identification No. in a manner to be decided by TREDA.
- 16.6 I-V Curve of the all SPV Modules should be submitted to the TREDA before commencement of supply.

17. WARRANTEE/GUARANTEE:

- 17.1 All parts and components of the SPV Street Lighting System such as battery, electronics, LEDs etc. shall be Warranted / Guaranteed for 5(five) Years from the date of commissioning.
- 17.2 PV modules must be Warranted /Guaranteed for their output wattage, which should not be less than 90% at the end of 10 years, 80% at the end of 25 years from the date of commissioning of the system.
- 17.3 Defective/ non-functioning Street Lighting Systems including battery, LED, electronics and PV module etc. shall be repaired / replaced free of cost by the successful bidder within the warranty/guarantee and OMC period for proper, sustained & reliable operation of the systems.
- 17.4 Any complaint from the User / TRED A / District Offices of DSTE must be attended within the stipulated period from the date of receipt of complaint in writing or telephonically or e-mail, failing which TRED A will make the system functional & debit the expenditure to the party which will be deducted from the remaining payment due to the successful bidder and the defaulter successful bidder will be blacklisted along with penal actions deemed found fit by TRED A. The expenditure towards the repairing of the system(s) determined by TRED A should be final & binding on the successful bidder.
- 17.5 During the Guarantee / Warranty and OMC period, State Agency / User reserve the right to cross check the performance of the systems with the minimum performance levels specified at Annexure – IV(A) and Annexure – IV(B) of this NIT / latest MNRE Guidelines for off-grid and decentralized solar applications.
- 17.6 Functionality Report of the Systems:
- 17.6.1 During Warranty / Guarantee and OMC period, the successful bidder has to submit the functionality status report of each system to TRED A through Officer – in – charge of the concerned districts as per the following schedule:
- 17.6.1.1 Monthly for 1st year,
- 17.6.1.2 Quarterly from 2nd year onwards till completion of Warranty / Guarantee & OMC Period
- 17.6.2 These certificates shall be taken by the successful bidder from the concerned user. Format for such report would be supplied from TRED A during placement of Work Order.
- 17.7 The successful bidder shall train, at its own cost, required number of personnel selected by User / TRED A for regular operation & maintenance of the systems through the Servicing Centres to be set up by the successful bidder as specified at Para 29.2 below. Service Centre wise list of such trainees alongwith contact details & Aadhaar Card /Voter ID should be submitted to TRED A prior to the commencement of execution of work.
- 17.8 TRED A reserves the right to claim damages and cost for non-fulfillment of Warranty / Guarantee and OMC, apart from forfeiture of Performance Security in the event of unsatisfactory maintenance.
- 17.9 Warrantee/Guarantee Card is to be supplied with each system as per the format specified during the placement of Work Order to the successful bidder.

18. SCOPE OF FIVE YEARS OPERATION AND MAINTENANCE CONTRACT (OMC):

- 18.1 The Contact details of Authorised Agent, technicians of Service Centre (Name, Mobile number, E-mail, Address) to be declared to all the users for repair and maintenance of the system during OMC.
- 18.2 The maintenance service provided shall ensure proper functioning of the LED based Solar Street Lighting system as a whole. All preventive/routine maintenance and breakdown/corrective maintenance required for ensuring maximum uptime shall have to be provided by the successful bidder. Accordingly, the Operation & Maintenance Contract (OMC) shall have two distinct components as described below:
- 18.3 Preventive/Routine Maintenance:
- 18.3.1 Preventive & Routine Maintenance of all the components of the system shall be carried out by the successful bidder as recommended by the manufacture/supplier of the component/sub system but at least once in every month.
- 18.3.2 This shall include cleaning of module surface, maintenance of other equipment's or any other adjustment required by the system, checking of all electrical connections, wherever required or any other activity that may be required for proper functioning of the system.
- 18.4 Breakdown/Corrective Maintenance:
- 18.4.1 Whenever a complaint is lodged by the user, the bidder shall attend to the same within a reasonable period of time (maximum 2 days).
- 18.4.2 In case if the material or major component needs to be rectified/replaced shall be corrected or replaced within a period not exceeding 7 (seven) days from the date of complaint.
- 18.4.3 The successful bidder shall maintain the following works at the local Service Centre for ensuring highest level of Services to the end user.
- 18.4.3.1 Adequately trained manpower, specifically trained by the successful bidder for carrying out the service activities should be available in the Servicing Centre.
- 18.4.3.2 Required T&P including at least 1 (one) foldable ladder should be available in the Servicing Centre.
- 18.5 Adequate provisions for record keeping, which shall inter-alia, include the following:
- 18.5.1 Details of system supplied within the command area of the service station including full name and address of end user, system and sub-system serial numbers and records of routine maintenance carried out (duly signed by the end user).
- 18.5.2 History record sheets of maintenance done.
- 18.6 Adequate spares should be maintained in the Servicing Centre for ensuring least down time of an individual system.
- 18.7 The Service Centre shall send summary service reports to TRED A on half yearly basis. These reports shall include the following information:
- 18.7.1 Number of systems covered by the Service Centre
- 18.7.2 Number of systems working satisfactorily on the reporting date
- 18.7.3 Number of complaints received during the period of reporting
- 18.7.4 Number of complaints attend during the period of reporting
- 18.7.5 Major cause of failure, as observed
- 18.7.6 Major replacement made during the reporting period. Separate report shall be submitted for each type of systems manufacture wise in case the service centre caters to the requirement of more than one manufacture.

- 18.8 The records maintained during the OMC period shall be available time to time to TRED A.
- 18.9 The date of OMC maintenance period shall begin on the date of actual date of commissioning of the systems.
- 18.10 Bidder shall furnish details of infrastructure that would be available for establishing of Service Centres.

19. FORCE MAJEURE:

- 19.1 Notwithstanding the provisions of clauses contained in this NIT; the successful bidder shall not be liable for forfeiture of its performance security, liquidated damages, termination for default, if he is unable to fulfill his obligation under this NIT due to event of force majeure circumstances.
- 19.2 For purpose of this clause, "Force majeure" means an event beyond the control of the contractor and not involving the contractor's fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of Govt. either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and fright embargoes.
- 19.3 However, if a force majeure situation arises, the contractor shall immediately notify the "TRED A" in writing. The decision of the Director & CEO, TRED A in above conditions shall be final & binding on successful bidder.

20. RATE:

- 20.1 The rate quoted should be in Indian Rupees and be firm exclusive of all taxes, duties and other charges etc. for the complete systems along with all accessories and fittings-fixing including supply, installation & commissioning of the systems at specified locations including 5 (five) years guarantee / warrantee and OMC from the date of commissioning of the systems. Hence the bidder should mention the applicable taxes as on the date of bidding as per Schedule given at Annexure VI(C) and Annexure – VI(D).
- 20.2 The evaluation of the Financial Bid will be made based on the rates quoted by the bidder excluding taxes etc.
- 20.3 Applicable Taxes would be added to the total value of the Work Order during placement of formal order considering the work as a tern-key job.
- 20.4 The rate should be legible written in English both in figure and in words. In case of any contradictions between the prices mentioned in figures and words, the prices mentioned in words shall be considered final.
- 20.5 Rates quoted should be valid for at least **12 (twelve) months** from the date of opening the tender.

21. PRICE VARIATION CLAUSE: Price should be fixed & firm. No price variation will be allowed in case of variation of raw materials cost, transportation etc.

22. VALIDITY OF TENDER & FINALIZED RATE: Once the rates are accepted by TRED A, the rates would be valid for the Financial Year 2017-18. The validity of accepted rates of TRED A may be extended on mutual agreement between TRED A & the successful bidder for consecutive years.

23. PAYMENT AND OTHER FINANCIAL TERMS:

- 23.1 No advance payment will be allowed.
- 23.2 The supplier shall prefer bills for 100% payment against the supply, installation & commissioning on successful & satisfactory installation and commissioning of the systems out of which 85% payment will be released.

- 23.3 15% amount of the bill value would be retained as Performance Security and would be released after satisfactory completion of 5 (five) years Warranty / Guarantee & OMC period. However, Performance Security may be released on submission of Bank Guarantee (BG) or Fixed Deposit Receipt (FDR) of equivalent amount in favour of Director & Chief Executive Officer, TREDA on Nationalized Bank having branches at Agartala, Tripura valid till completion of Guarantee / Warranty and OMC period (Draft format for Bank Guarantee for Performance Security is given at Annexure – V).
- 23.4 Running bills may be considered for payment on completion of at least 20% of the ordered quantity.
- 23.5 All payments shall be made in Indian Rupees through NEFT/RTGS only for which successful bidder has to submit Bank Details as and when asked for.
- 24. RELEASE OF BANK GUARANTEE (BG) / FIXED DEPOSIT RECEIPT (FDR) OF PERFORMANCE SECURITY:**
- 24.1 Bank Guarantee (BG) or Fixed Deposit Receipt (FDR) submitted by the successful bidder as Performance Security would be released on satisfactory completion of Guarantee / Warranty and OMC period as per terms & conditions of the contract.
- 24.2 Bank Guarantee or Fixed Deposit Receipt would be forfeited partially / absolutely on non-compliance of Guarantee / Warranty and OMC terms & conditions. The decision of TREDA in this regard would be final & binding on the Contractor.
- 25. STATUTORY DEDUCTION FROM BILL:** Admissible taxes etc. as applicable & necessary will be deducted from the bill of the successful bidder at source as per the prevalent laws and rules of Government of India and Government of Tripura in this regard.
- 26. SUBMISSION OF BILLS FOR PAYMENT/PERFORMANCE SECURITY AFTER SUCCESSFUL EXECUTION:**
- 26.1 The successful bidder may submit the bills to TREDA through Officer-in-charge of the concerned district.
- 26.2 The bills should be accompanied by completion report in respect of installation & commissioning of the systems duly signed by the concerned authority of user, TREDA/Officer-in-charge of respective districts, representative of PRI body along with at least 2(two) photographs (soft copy) of each system containing proper marking stipulated by TREDA during execution of work.
- 26.3 The bills claiming Performance Security should be accompanied by satisfactory performance report for that concerned period in respect of Repair Maintenance / Routine Checkup of the systems duly signed by the concerned authority of user, Officer-in-charge of TREDA / respective district offices.
- 27. RELEASE OF EARNEST MONEY (EMD):**
- 27.1 Earnest Money Deposit of the successful bidder will be released on successful operation of the systems for 90 (ninety) days from the date of commissioning of the systems.
- 27.2 EMD of un-successful bidders shall be returned after award of the contract/ order to the successful bidder. No interest will be paid on the earnest money.
- 27.3 The EMD of the successful bidder may be forfeited along with other penal actions as deemed fit by the Tendering Authority if the bidder fails to submit the acceptance of the Work Order within the stipulated period or

- fails to execute the awarded work within the stipulated period, after acceptance of the Work Order.
- 27.4 If any bidder withdraws his offer after opening Technical Bid before opening of Financial Bid, 25% of the deposited EMD may be forfeited.
- 27.5 If any bidder withdraws his offer after opening of Financial Bid and within the period of validity or makes any modification in the terms and conditions of the quotation which are not acceptable to the Tendering Authority, 50% of the deposited EMD may be forfeited.
- 28. RESPONSIBILITY OF STORES DURING TRANSIT:** Successful bidder should be solely responsible for stores in transit and during supply, installation & commissioning. Any legal interference of Police / Sales tax / Income tax / Transport / Any other Govt. Agencies will have to be faced by the successful bidder. The transportation delay / non availability of train, truck etc. will never be considered by the tendering authority as reason of delay to supply and naturally no extension of delivery period will be granted on this account.
- 29. LOCAL OFFICE / AGENT FOR INSTALLATION, COMMISSION & AFTER SALES SERVICE DURING WARRANTY / GUARANTEE AND OMC PERIOD:**
- 29.1 Bidders must have authorized technically equipped agents / dealers in **Tripura** with full support of infrastructure and skilled technical persons for providing after sales services during the guarantee / warranty and OMC period even beyond that. The details of Authorized Agent/dealer i.e. the name of proprietor / owner, complete addresses, contact number etc. along with the list of technicians with address and telephonic numbers are to be submitted to the office of the undersigned before execution of work.
- 29.2 Bidders must have to establish at least one Servicing Centre each at Nirvoypur Cluster, Kathalia RD Block, Sepahijala District & Hrishyamukh Cluster, Hrishyamukh RD Block, South Tripura District and at every district head quarter for the timely maintenance of the systems. Consumable parts (charge controller, LED assembly, driver, switches, fuses etc.) as required for providing services under guarantee / warranty obligations should be maintained at the servicing centers as spare parts for carrying out the proper maintenance of the systems. This shall be at least for 5% of the number of SPV Street Lighting Systems erected in the concerned district. Officer – in – Charge of DSTE/TREDA may visit the Servicing Centres to check the functionality status, availability of spares etc. The details of such Service Centres with the list of technicians with address and telephonic numbers are to be submitted to the office of the undersigned before execution of work.
- 29.3 No retired employees of Tripura Renewable Energy Development Agency/ Department of Science, Technology & Environment, Govt. of Tripura or its constituent bodies within a period of 2(Two) years of retirement from Government service and the persons having direct or indirect relationship with the employees of Department of Science, Technology & Environment, Tripura Renewable Energy Development Agency or any other constituent bodies of Department of Science, Technology & Environment shall be engaged in this job by the successful bidder. If such type of irregularities is noticed at any point of time during execution of work, the Work Order may be cancelled and penalty also may be imposed as deemed fit by the undersigned.
- 30. SUPERVISION / EXECUTION OF WORKS:**
- 30.1 The works should be done as per the direction of concerned Officer – in – charge, Tripura Renewable Energy Development Agency / concerned

- district Scientific Officers of Deptt. of Science, Technology & Environment, Tripura.
- 30.2 A joint programme of execution of the works will be prepared by the concerned Officer-in Charge and successful bidder based on priority requirement of this project. This programme will take into account the time of completion mentioned in Clause No. 16.3 above and the time allowed for the priority Works by the Officer-in-Charge.
- 31. SPECIFICATIONS:** General specification of Solar Photovoltaic Street Lighting System is given at Annexure – IV(A) & Annexure – IV(B) of this NIT. If there is any left out specification shall be guided as per the latest MNRE Guidelines for off-grid and decentralized solar applications.
- 32. SAMPLE OF SPV STREET LIGHTING SYSTEM:** The offer shall be accompanied by the samples of the **Luminary**. The offer received without samples may be rejected. The unsuccessful bidders may collect the sample within 15 (Fifteen) days, after finalizing the rates, failing which TREDA shall not be responsible for any loss/ damage of the sample. Successful bidder may request for return of their sample after expiry of warranty period.
- 33. QUANTITY TO BE PROCURED:**
- 33.1 The quantity shown in the tender is indicative and may be increased or decreased at the discretion of tendering authority as per the accepted rate, terms & conditions stipulated in the Work Order of successful bidder. However location wise breakup is given below:
- 33.1.1 Nirvoypur Cluster, Kathalia RD Block, Sepahijala District: 900 nos.
- 33.1.2 Hrishyamukh Cluster, Hrishyamukh RD Block, South Tripura District: 850 nos.
- 33.1.3 Other various locations in the state: 550 nos.
- 33.2 Formal orders will be placed with the successful bidder in batches in accordance with the supply capacity of the successful bidder mentioned in Annexure – VI(A) & Annexure – VI(B) of the bidding schedule by the successful bidder and / or as per requirement of TREDA. But minimum quantity / batch would not be less than 100 (one hundred) nos. of systems.
- 33.3 After issuance of the work order, if it is reviewed that performance of the contractor is not satisfactorily or contractor has failed to supply the materials maintaining delivery schedule, then TREDA may slash the reasonable quantity assessed by the TREDA and work order will be placed to other bidders participated in the tender and the cost difference, if any, will be recovered from errant supplier. Successful bidder will not have any claim over the slashed quantity.
- 34. AUTHORITIES TO MAKE CORRESPONDENCE WITH THE BIDDER / CONTRACTOR:**
- 34.1 The Tendering Authority during evaluation of Technical & Financial Bid prior to the placement of Work Order,
- 34.2 The Tendering Authority after placement of Work Order during execution / post execution of work during warranty / guarantee & OMC period.
- 34.3 Concerned Officer-in-charge of TREDA & Department of Science, Technology & Environment, post execution of work during warranty / guarantee & OMC period.
- 35. AMENDMENTS IN TENDER DOCUMENT:**
- 35.1 At any time prior to the due date for submission of the tender, TREDA may for any reason, whether at its own initiative or as a result of a request for clarification/ suggestion by a prospective tenderer, amend the tender document by issuing a notice.

- 35.2 The amendments, if any, will be notified on the websites at least **5 (five) days** before the last date of submission of the tender and intending bidder (s) are requested to visit the website regularly prior to submitting their bid. TREDA will bear no responsibility or liability arising out of non-receipt of the information in time or otherwise.
- 35.3 If any amendment is required to be notified within 5 (five) days of the last date of submission of the tender, the last date of submission shall be extended for a suitable period of time.

36. CLARIFICATIONS ON SUBMITTED TENDER DOCUMENTS:

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

37. PRE-BID MEETING:

- 37.1 A pre-bid meeting may be held at the office of the Tendering Authority on **05/04/2017** at **12:00 noon**. Interested bidders may confirm their participation alongwith queries within **03/04/2017 by 4:00 PM** in written through e-mail or Fax.
- 37.2 TREDA is not under any obligation to entertain / response to suggestions made or to incorporate modifications sought for.

38. INSPECTION AND TESTING OF MATERIALS:

- 38.1 Prior to placing formal order, pre inspection of the manufacturing unit of the bidder eligible for getting the work may be made by the officials of TREDA to assess the capability.
- 38.2 The materials will be dispatched / installed by the successful bidder after inspection by the Director, TREDA or his representative at the bidder's / premises / manufacturing unit or at site and acceptance of the same. The successful bidder shall provide without any extra charge, all materials, tools, testing equipments, labour and assistance of every kind which the inspecting officer may consider necessary for any test or examination which he may require to be made on the successful bidder's premises / manufacturing unit or site.
- 38.3 TREDA can also get the systems tested from one of the MNRE approved / IEC / NABL Accredited Test Laboratories and the expenses shall be borne by the successful bidder.
- 38.4 All the expenses for the inspection of gadgets (At the bidder's premises / manufacturing unit or at site) by the TREDA's representatives like travelling, boarding and lodging charges will be borne by the successful bidder.

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

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

41. GENERAL:

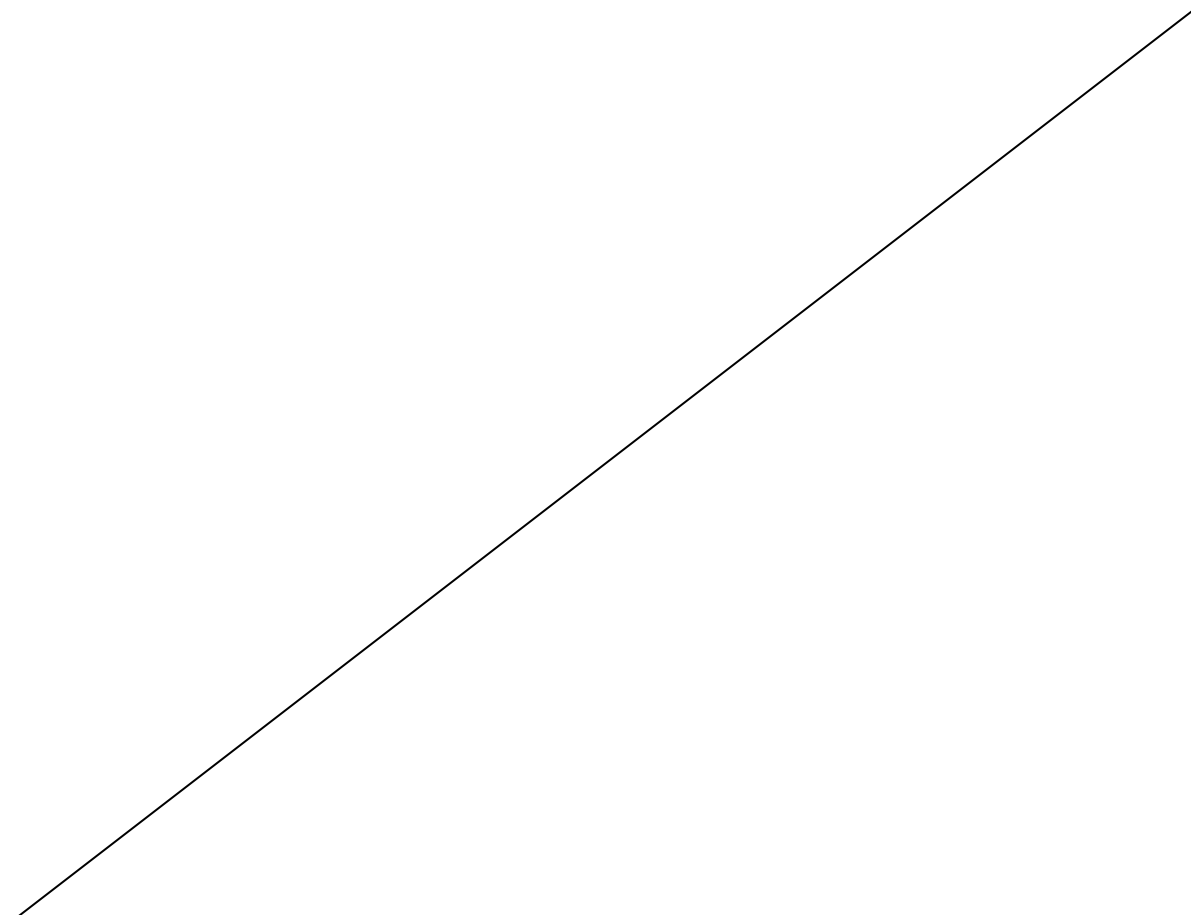
- 41.1 The sealed envelopes addressed to the Tendering Authority containing the bid document superscripted with "**Tender for supply, installation & commissioning of Solar Photovoltaic stand alone W-LED based Street Lighting System in Tripura on turn-key basis including 5 (five) years guarantee / warranty and OMC with NIT no. & Date, Due date & time etc.**" are to be submitted.

- 41.2 No T & P will be supplied from TRED A for successful execution of the work.
- 41.3 Deviation of specifications and Terms and Conditions of NIT documents may cause for rejection of the offer of bidder.
- 41.4 In case of any ambiguity in interpretation of any of the clauses/provision of the said NIT, the decision of the Director & CEO, TRED A shall be final and binding on the bidder / Contractor.
- 41.5 The tender prepared by the tenderer along with all the related documents shall be in *English only*. Any printed literature furnished by the tenderer may be in another language so long as it is accompanied by an English translation of its pertinent passages. Unit measurements shall be metric in accordance with International system.
- 41.6 The tenderer is expected to examine all instructions, terms and conditions, specifications, forms and formats etc. as mentioned in the tender document. Failure to furnish all information required in the tender document or submission of a tender not substantially responsive to the tender document in every respect will be at the tenderer's risk and is likely to result in out-right rejection of the tender.
- 41.7 The copy of the tender document downloaded from website must be signed & stamped with the legal name of the corporation/ company by the President / Managing Director / Secretary of the firm or a person duly authorized to bid and should be enclosed with the technical bid of the tender. In case of authorized person, the letter of authorization by written power-of-attorney should be enclosed with the technical bid of the tender. The person or persons signing the tender shall initial all pages of the tender document. The tender shall contain no interlink actions, erasers or overwriting except as necessary to correct the errors made by the tenderer in the preparation of tender. The person or persons signing the tender shall also sign & stamp at all such corrections.
- 41.8 The signature on the bid document should be deemed to be authorized signatures.
- 41.9 Tender not accompanied with Cost of tender document & requisite EMD shall not be accepted. However, Government of India Undertakings will have the option of submitting EMD in the form of bank guarantee on any Scheduled Bank.
- 41.10 Copy of Sales Tax / VAT Registration / Clearance Certificates, PAN Card issued by appropriate authority, Income Tax Return of last three Assessment Years are to be submitted along with the Technical Bid.
- 41.11 Successful bidder should supply & install 2 (two) two sign boards of size 7 ft. X 5 ft. made of Aluminium sheet and MS Angle at a suitable location under Nirvoypur Cluster, Kathalia RD Block, Sepahijala District and Hrishyamukh Cluster, Hrishyamukh RD Block, South Tripura District as per direction of the Officer-in-charge. The contents of Sign Boards would be decided by TRED A during execution of work.
- 41.12 Work should be completed within 90 (Ninety) days positively from the date of issuing work order. The date of issue of the Work Order may be considered as the zero date.
- 41.13 One copy of the operation and maintenance manual in English and Bengali for the system in the form of booklet as per standard format are to be supplied to concerned user.
- 41.14 The facilities may be extended as per norms to SSI UNITS registered with NSIC under its single point registration scheme having manufacturing unit at Tripura.

- 41.15 Bidders who have submitted bids against any work of TREDA, became successful bidders but failed to accept the work order issued to them by TREDA within specified time period/ failed to execute the works after issue of work orders, should not submit bid against this tender or otherwise their bids will not be accepted.
- 41.16 The Declaration by the Tenderer given at Annexure - II should be submitted in the letterhead alongwith the offer/bid.
42. The above terms and condition will be stipulated in the work order.
43. If any of the above applicable paper is not attached with any tender, tendering authority reserves the right to declare the incomplete tender as informal.
44. The successful tenderer shall be required to convey the acceptance of the Work Order on a valid Non-judicial stamp paper of Rs. 100/- (Rupees one hundred only) for strict compliance of the terms and conditions of the contract vis-à-vis the NIT within fifteen days of placement of the work order.
45. **RIGHT TO ACCEPT / REJECT THE BID:** Tendering Authority reserves the right to accept or reject any Bid and to annul the tender process and reject all such bids at any time prior to award of contract, without thereby incurring any liability to the affected applicant(s) or any obligation to inform the affected applicant(s) of the ground for such decision.



(K K GHOSH)
Director & CEO



SIGNATURE OF BIDDER & SEAL



ANNEXURE-I

TECHNICAL BID

PART-I (a) : COMMERCIAL INFORMATION

- 1 Grade of bidder: SP
1A/1B/1C/2A/2B/2C (attach copy)

- 2 Name & complete address of the bidder with telephone, mobile, fax nos. & Email etc.

- 3 Details of the authorized signatory to whom reference shall be made
Name:
Designation:
Mobile Number:
Fax Number:
e-mail ID:

- 4 Present activities/business of the firm
 - i. SPV- Module Manufacturer

 - ii. SPV –Electronics Manufacturer of SLS

 - iii. SPV – Battery Manufacturer

 - iv. other activities

- 5 PAN Card/ VAT/ Sale tax registration number (attach copy)

- 6 Details of T & P to be used in the Servicing Centres

- 7 Detail of any existing service network in Tripura (name & address of service centres, year of opening), if available

Date

Signature of bidder & seal

SIGNATURE OF BIDDER & SEAL

PART I(b): CHECKLIST FOR TENDERER

1 EMD of Rs. 11,69,500/- DD No.
(Rupees eleven lakhs sixty nine thousand five hundred)
(Attached/ not attached.)

Date

Name of the Bank:

Payable at

2 Copy of valid test Certificates of LED based Street Lighting Systems, attached or not? Attached / not attached.

3 List of LED based SPV Street Lighting System supplied, installed & commissioned by the bidder in last three financial years & current financial year as on the date of publication of the NIT (the list should include the following **alongwith copies of concerned work orders:**
(a) Name of Organisation which have awarded the work
(b) Location of work
(c) Total contact amount
(d) Year of award of work
(e) Details of involvement in the work
(f) Was the work completed satisfactorily within stipulated time Attached / not attached

4 Literature/ leaflets on products Attached / not attached

5 Declaration by the Tenderer as per Annexure – II of this NIT Attached / Not attached.

Date

Signature of bidder & seal

SIGNATURE OF BIDDER & SEAL

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

Description of the Items	Tentative Quantity
Supply, installation & commissioning of Solar PV stand alone W-LED based Street Lighting Systems in Tripura using <u>Tubular GEL /VRLA Battery</u> on turnkey basis as per the specifications mentioned at Annexure – IV (A) of this NIT including 5 (five) years guarantee / warranty and OMC (25 years guarantee / warranty for SPV Module).	2200 (two thousand two hundred) nos.
Supply, installation & commissioning of Solar PV stand alone W-LED based Street Lighting Systems in Tripura using <u>Lithium Ferro Phosphate Battery</u> on turnkey basis as per the specifications mentioned at Annexure – IV (B) of this NIT including 5 (five) years guarantee / warranty and OMC (25 years guarantee / warranty for SPV Module).	100 (One hundred) nos.

Date

Signature of bidder & seal

SIGNATURE OF BIDDER & SEAL



PART – II(b): TECHNICAL INFORMATIONS OF SPV STREET LIGHTING SYSTEM USING TUBULAR GEL /VRLA BATTERY:

Sl. No.	Name of component	Name of the manufacturer as per Test Report	Test Report
1	60 Wp capacity SPV Module		Attached / Not attached
2	12 Volt, 40 AH, Tubular GEL /VRLA Battery @ C/10		
3	White LED		
4	Electronics / BOS		

Date

Signature of bidder & seal

PART – II(c): TECHNICAL INFORMATIONS OF SPV STREET LIGHTING SYSTEM USING LITHIUM FERRO PHOSPHATE BATTERY:

Sl. No.	Name of component	Name of the manufacturer as per Test Report	Test Report
1	40 Wp capacity SPV Module		Attached / Not attached
2	180 Wh Lithium Ferro Phosphate Battery		
3	White LED		
4	Electronics / BOS		

Date

Signature of bidder & seal

SIGNATURE OF BIDDER & SEAL

Handwritten signature and date: 19/11/17

ANNEXURE- II**(To be given in the letterhead of the bidder)****DECLARATION BY THE TENDERER**

(Regarding Tender Notice No.F.6(214)/TREDA/NCES/16/190, dated 19/04/2017)

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

- 1) The Tenderer is fully aware of all the requirements of the tender document and agrees with all provisions of the tender document.
- 2) The Tenderer is capable of executing and completing the work as required in the tender.
- 3) The Tenderer accepts all risks and responsibilities directly or indirectly connected with the performance of the tender.
- 4) The Tenderer has no collusion with other contractor, any employee of TREDA / Department of Science, Technology & Environment, Govt. of Tripura or its autonomous bodies or with any other person or firm in the preparation of the bid.
- 5) The Tenderer has not been influenced by any statement or promises of TREDA / Department of Science, Technology & Environment, Govt. of Tripura or its autonomous bodies or any of its employees but only by the tender document.
- 6) The Tenderer is financially solvent and sound to execute the work.
- 7) The Tenderer is sufficiently experienced and competent to perform the contract to the satisfaction of TREDA.
- 8) The information and the statements submitted with the tender are true.
- 9) The Tenderer is familiar with all general and special laws, acts, ordinances, rules and regulations of the Municipal, District, State and Central Government that may affect the work, its performance or personnel employed therein.
- 10) The Tenderer has not been debarred or Black Listed from similar type of work by TREDA and or Central / State Government Departments /Undertaking during last three years.
- 11) This offer shall remain valid for acceptance for 12 (twelve) months from the date of opening of the tender.
- 12) The Tenderer gives the assurance to execute the tendered work as per specifications, terms and conditions.
- 13) **The Bidder confirms the capability to supply and install more than _____ Systems/capacity in a year.**
- 14) The quote to supply the goods and materials specified in the underwritten schedule in the manner in which and within the time specified as set forth in the conditions of contract at the rates given in the financial bid.
- 15) The terms and conditions of tender will be binding upon bidder in the event of acceptance of their tender.

SIGNATURE OF BIDDER & SEAL

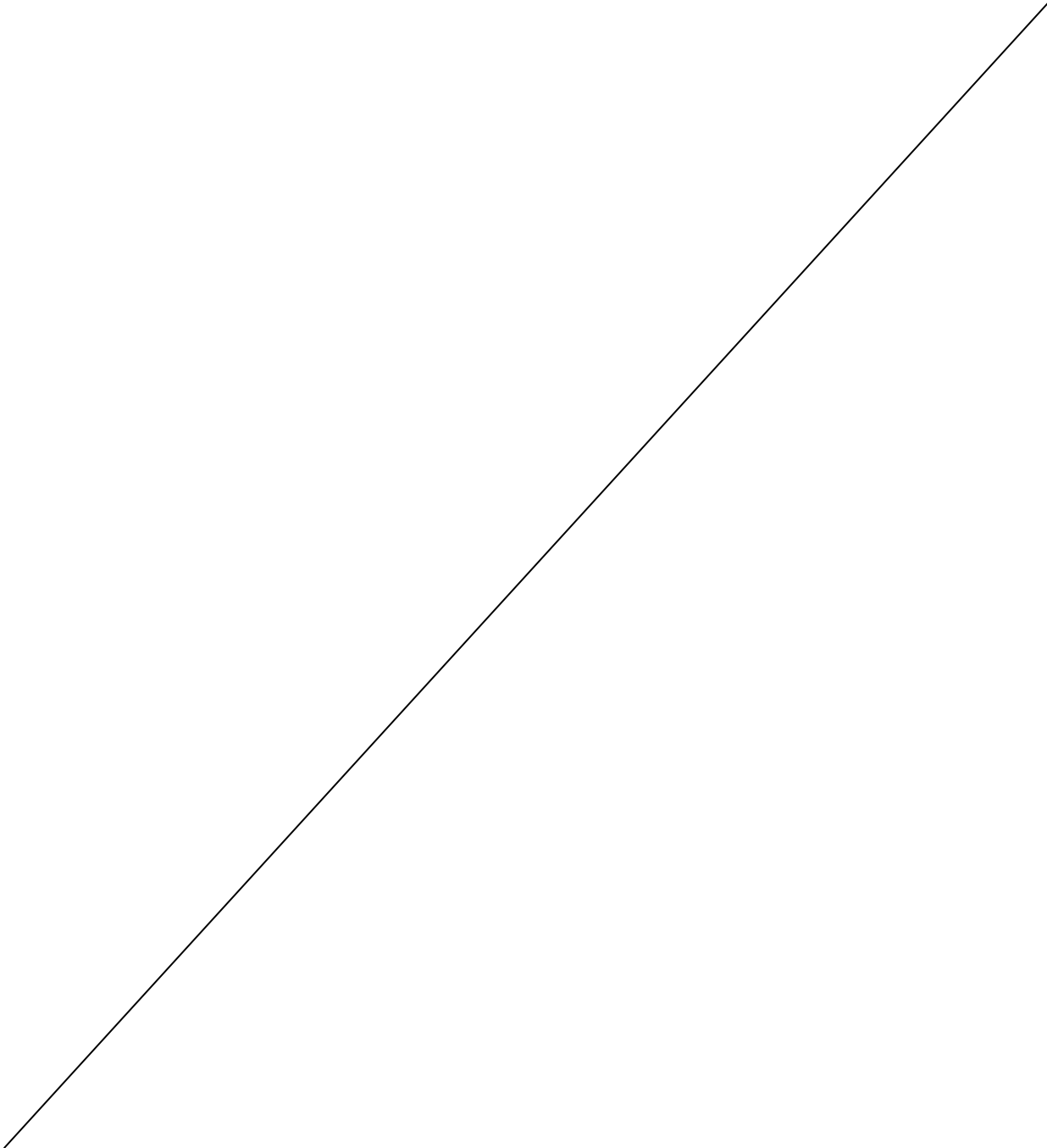
- 16) The Tenderer has attached herewith the earnest money as required in the tender document.
- 17) The Tenderer accepts that the earnest money be partially / absolutely forfeited by TREDAs as per the terms & conditions laid down in this NIT.

(Signature of the authorized signatory)

Name: _____

Designation: _____

Company Seal:



Handwritten signature and date: 19/11/17

ANNEXURE - III***(Format for covering letter)***

(To be submitted in the official letter head of the company)

Ref. No. _____ Date _____ / _____ / 2017

NIT No.F.6(214)/TREDA/NCES/16/190, dated 19/04/2017

To
The Director & CEO,
Tripura Renewable Energy Development Agency,
Vigyan Bhawan, P.N. Complex,
Gorkhabasti, Agartala,
West Tripura District.

SUB: Offer in response to the NIT No.F.6(214)/TREDA/NCES/16/190, dated 19/04/2017 for supply, installation & commissioning of W-LED based Solar Photovoltaic Street Lighting System in Tripura on turnkey basis including 5 (five) years Guarantee / Warrantee and OMC (25 years Guarantee / Warrantee for SPV Module).

Sir,

We are submitting our offer in full compliance of the terms & conditions of the above cited NIT. A blank copy of tender duly signed on each page is also submitted as a proof of our acceptance of all specifications as well as all the terms & conditions. We have submitted the cost of tender document & requisite EMD as per NIT terms & conditions.

We confirm that we have the capability to supply, install & commission the systems within the scheduled period.

We confirm that our offered rate would be valid for at least 12 (twelve) months from the date of opening of tender.

The tender is submitted in two separate envelopes for Technical Bid & Financial Bid alongwith all the relevant documents as per NIT.

(Signature of the authorized signatory)

Name:

Designation:

Company Seal:

SIGNATURE OF BIDDER & SEAL

Handwritten signature and date: 19/04/17

ANNEXURE – IV(A)**TECHNICAL SPECIFICATIONS OF LED BASED SPV STREET LIGHTING SYSTEM USING TUBULAR VRLA / GEL BATTERY**

A stand alone photovoltaic street lighting system (SLS) is an outdoor lighting unit used for illuminating a street or open area. The Solar Street Lighting System consists of Solar Photovoltaic (SPV) Module, a luminaire, storage battery, control electronics, inter-connecting wires/cables, module mounting 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 and switches off at dawn automatically.

BROAD PERFORMANCE SPECIFICATIONS

PV Module	60 WP under STC
Battery	Tubular GEL /VRLA, 12V, 40 AH @ C/10
Light source	White Light Emitting Diode (W-LED) 12 Watt (LED + Driver), W-LED luminaire, dispersed beam, soothing to eyes with the use of proper optics and diffuser
Light output	Minimum 16 Lux when measured at the periphery of 4 meter diameter from a height of 4 meter. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye. Higher light output will be preferred.
Mounting of light	Minimum 3.5 metre from ground level, pole mounted
Electronics efficiency	Minimum 85% total
Duty Cycle	Dusk to dawn, auto Switch ON / OFF

STANDARDIZATIONS

ITEM	IEC/EQUIVALENT BIS STANDARD
Solar standalone system performance	IEC 62124
SPV Module	IEC 61215 Edition II / BIS 14286 and IEC 61730 Part 1 & Part 2
LED driver safety	IEC 61347- 213
LED driver performance	IEC 62384
EMC immunity requirements	IEC 61547

TECHNICAL DETAILS**1. PV MODULE:**

- 1.1 Indigenously manufactured PV module should be used,
- 1.2 The PV module should have crystalline silicon high power solar cells and must have a certificate of testing conforming to IEC 61215 Edition II / BIS

SIGNATURE OF BIDDER & SEAL

Handwritten signature and date: 19/11/17

- 14286 and IEC 61730 Part 1 & Part 2 from an NABL or IECQ accredited Laboratory.
- 1.3 The power output of the module(s) under STC should be a minimum of 60 Wp.
 - 1.4 Mounting frame: Powder coated.
 - 1.5 **Module efficiency: $\geq 14\%$.**
 - 1.6 **Solar Cell efficiency: $\geq 17\%$**
 - 1.7 The enclosure of terminal box / junction box on the module shall be designed for long life out door operation in harsh environment & should confirm IP65. The Box should have a provision for opening it for replacing the cable, if required.
 - 1.8 The PV module must have a Name Plate placed inside the module laminate, which must contain the following information:
 - 1.8.1 Name of the manufacturer of PV Module
 - 1.8.2 Model or Type Number
 - 1.8.3 Serial Number
 - 1.8.4 Month and year of the manufacture
 - 1.8.5 **Embossing: "TREDA"** under front glass cover of the SPV Modules.
 - 1.9 A distinctive serial number will be engraved on the frame of the module or screen printed on the tedlar sheet of the module.
- 2. BATTERY:**
- 2.1 Approved Make: Reputed Indian
 - 2.2 Capacity: 12 Volt, 40 AH at C/10 discharge rate
 - 2.3 Type: Tubular GEL /VRLA.
 - 2.4 Mounting Position: Not less than 3 meters above the ground.
 - 2.5 Battery Box material: Acid proof plastic [made of Polypropylene-Copolymer (PP-CP)] with lock & key provision.
 - 2.6 Battery should conform to the IS 15549:2005 or other relevant IS standards in existence.
- 3. LIGHT SOURCE:**
- 3.1 The light source should be a White LED (W-LED) type.
 - 3.2 System Wattage (LED + Driver): 12 watt.
 - 3.3 LED level efficacy: Not less than 120 Lumen / watt
 - 3.4 Lumen at system level: Minimum 1200 lumen (Nominal)
 - 3.5 *Average Lux (on road surface with 4 meters pole height, 20 meters spacing on 4 meter wide road with single sided arrangement): **Design to be submitted along with the bid showing contours of maximum, minimum lux and therefore the calculative average lux.***
 - 3.6 LED life: > 50,000 hours
 - 3.7 Driver Type: DC – DC
 - 3.8 Driver Life: $\geq 50,000$ cycles
 - 3.9 Housing: IP 66, Aluminium Pressure Die-cast Housing (full body) with toughened glass.
 - 3.10 Luminaire arm: Powder coated.
 - 3.11 LED connection: All LEDs must be connected in series to ensure fail short mechanism.
 - 3.12 Embossing: Luminaire be embossed with Indian manufacturer Name (Sticker / name plate not allowed).
 - 3.13 Additional embossing: "TREDA".
 - 3.14 W-LEDs should not emit ultraviolet light.
 - 3.15 The light output from the White LED light source should be constant throughout the duty cycle.
 - 3.16 The temperature of heat sink should not increase more than 20 °C above ambient temperature during dusk to dawn operation.
 - 3.17 The Colour temperature of White LED used in the system should be in range of 5000°K – 6500°K.

- 3.18 The lamps should be housed in an assembly suitable for outdoor use.
- 3.19 The entry point of electrical cables for electrical connections should be at the bottom the housing with proper sealing to prevent entry of water.
- 3.20 Reports: LM 79 and LM 80 should be submitted alongwith technical bid.
- 3.21 Testing facility: Vender should have in-house testing facility.
- 3.22 Approved make of Luminaire: Reputed Indian Make.

4. CHARGE CONTROLLER / ELECTRONICS:

- 4.1 Approved make: Reputed Indian.
- 4.2 Rating: 12 Volt, 7.5 Amps
- 4.3 Efficiency: $\geq 90\%$.
- 4.4 Charge Controller should be MPPT / PWM based and should operate at 12V and should have temperature compensation for proper charging of the battery throughout the year.
- 4.5 Standards to be complied for MPPT performance: EN 50530
- 4.6 No load / Standby current consumption: < 20 mA.
- 4.7 Enclosure: IP 66, integrated inside luminaire enclosure.
- 4.8 The PV module itself should be used to sense the ambient light level for switching ON and OFF the lamp.
- 4.9 **The PCB containing the electronics should be capable of solder free installation and replacement.**
- 4.10 Programmable microprocessor based dimming solutions should be provided in the lighting units to provide light at full brightness for initial operation of 6 (six) hours from dusk and then with 50% dimming for the rest of the hours upto dawn. **A manual switching system should be provided for Dimming option to make it ON /OFF so that, if required by user, the lighting unit can be used to provide light at full brightness through dusk to dawn.**
- 4.11 Necessary lengths of wires/cables, switches suitable for DC use and fuses should be provided. All the cables / switches etc. should be ISI Marked.

5. ELECTRONIC PROTECTIONS:

- 5.1 Adequate protection is to be incorporated under "No Load" conditions e.g. when the lamp is removed and the system is switched ON.
- 5.2 The system should have protection against battery overcharge and deep discharge conditions.
- 5.3 Fuse should be provided to protect against short circuit conditions.
- 5.4 Protection for reverse flow of current through the PV module(s) should be provided.
- 5.5 Electronics should have temperature compensation for proper charging of the battery throughout the year.
- 5.6 Adequate protection should be provided against battery reverse polarity.

6. POLE:

- 6.1 Type: MS Galvanized Tubular Pole
- 6.2 Total pole height: 4.5 metres
- 6.3 Size of pole: Lower 2.5 meters length with outer diameter of 88.90 mm, 4 mm thickness and upper 2 meters with outer diameter of 76.10 mm, thickness 3.6 mm.
- 6.4 Wind speed resistance: 200 km/h
- 6.5 Base foundation: 1:2:4 (1 Cement: 2 River sand: 4 1st class Brick aggregate/stone chips 20 mm N/size) Cement Concrete at the size of minimum 0.5 m X 0.5 m X 0.75 m (0.60 meter below the ground & 0.15 meter above the ground).

- 6.6 The pole should have the provision to hold the lamp housing.
 - 6.7 Power Coated Module Mounting frame should be fixed on the pole to hold the SPV module(s). The frame structure should have provision to adjust its angle of inclination to the horizontal between 0 deg. and 30 deg., so that the module(s) can be oriented at the specified tilt angle.
 - 6.8 The pole should have the provision to hold the weather proof lamp housing. The Powder Coated luminaire arm for holding the light assembly should be set at 45 deg. angle to the horizontal or at suitable angle to maximize uniform illumination of desired level over the specified area.
 - 6.9 The pole should have the provision to hold weather proof, acid proof plastic battery box with the pole for housing the storage batteries.
 - 6.10 The battery box assembly should be located at not less than 3 metres height of the pole above ground.
- 7. INDICATORS:**
- 7.1 The system should have two indicators, GREEN and RED.
 - 7.2 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.
 - 7.3 RED indicator should indicate the battery “Load Cut Off” condition.
 - 7.4 The indicators should be so placed as the same could be seen easily from ground.
- 8. QUALITY AND WARRANTY:**
- 8.1 The street lighting system including the battery will be warranted for a period of 5 (five) years from the date of commissioning.
 - 8.2 The PV module(s) will be warranted for a minimum period of 25 years from the date of commissioning. The PV modules must be warranted for their output peak watt capacity, which should not be less than 90% at the end of Ten (10) years and 80% at the end of Twenty five (25) years.
 - 8.3 The Warranty Card to be supplied with the system must contain the details of the system.
- 9. 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:
- 9.1 Basic principles of Photovoltaics.
 - 9.2 A small write-up (with a block diagram) on Solar Street Lighting System – its components, PV module, battery, electronics and luminaire and expected performance.
 - 9.3 Type, Model number, Voltage & capacity of the battery, used in the system.
 - 9.4 The make, model number, country of origin and technical characteristics (including IESNA LM – 80 report) of W -LEDs used in the lighting system.
 - 9.5 About Charging and Significance of indicators.
 - 9.6 Clear instructions about erection of pole and mounting of PV module (s) and lamp housing assembly on the pole.
 - 9.7 Clear instructions on regular maintenance and trouble shooting of the Solar Street Lighting System.
 - 9.8 DO's and DONT's.
 - 9.9 Name and address of the contact person for repair and maintenance, in case of non-functionality of the solar street lighting system.

ANNEXURE – IV(B)**TECHNICAL SPECIFICATIONS OF LED BASED SPV STREET LIGHTING SYSTEM USING LITHIUM FERRO PHOSPHATE BATTERY**

A stand alone photovoltaic street lighting system (SLS) is an outdoor lighting unit used for illuminating a street or open area. The Solar Street Lighting System consists of Solar Photovoltaic (SPV) Module, a luminaire, storage battery, control electronics, inter-connecting wires/cables, module mounting 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 and switches off at dawn automatically.

BROAD PERFORMANCE SPECIFICATIONS

PV Module	40 WP under STC
Battery	Minimum 180 Wh Lithium Ferro Phosphate
Light source	White Light Emitting Diode (W-LED) 7Watt (LED + Driver), W-LED luminaire, dispersed beam, soothing to eyes with the use of proper optics and diffuser
Light output	Minimum 16 Lux when measured at the periphery of 4 meter diameter from a height of 4 meter. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye. Higher light output will be preferred.
Mounting of light	Minimum 3.5 metre from ground level, pole mounted
Electronics efficiency	Minimum 85% total
Duty Cycle	Dusk to dawn, auto Switch ON / OFF

STANDARDIZATIONS

ITEM	IEC/EQUIVALENT BIS STANDARD
Solar standalone system performance	IEC 62124
SPV Module	IEC 61215 Edition II / BIS 14286 and IEC 61730 Part 1 & Part 2
LED driver safety	IEC 61347- 213
LED driver performance	IEC 62384
EMC immunity requirements	IEC 61547

TECHNICAL DETAILS**1. PV MODULE:**

- 1.1 Indigenously manufactured PV module should be used,
- 1.2 The PV module should have crystalline silicon high power solar cells and must have a certificate of testing conforming to IEC 61215 Edition II / BIS

SIGNATURE OF BIDDER & SEAL

- 14286 and IEC 61730 Part 1 & Part 2 from an NABL or IECQ accredited Laboratory.
- 1.3 The power output of the module(s) under STC should be a minimum of 40 Wp.
 - 1.4 Mounting frame: Powder coated.
 - 1.5 **Module efficiency: $\geq 14\%$.**
 - 1.6 **Solar Cell efficiency: $\geq 17\%$**
 - 1.7 The enclosure of terminal box / junction box on the module shall be designed for long life out door operation in harsh environment & should confirm IP65. The Box should have a provision for opening it for replacing the cable, if required.
 - 1.8 The PV module must have a Name Plate placed inside the module laminate, which must contain the following information:
 - 1.8.1 Name of the manufacturer of PV Module
 - 1.8.2 Model or Type Number
 - 1.8.3 Serial Number
 - 1.8.4 Month and year of the manufacture
 - 1.8.5 **Embossing: "TREDA"** under front glass cover of the SPV Modules.
 - 1.9 A distinctive serial number will be engraved on the frame of the module or screen printed on the tedlar sheet of the module.
- 2. BATTERY:**
- 2.1 Capacity: Minimum 180 Wh
 - 2.2 Type: Lithium Ferro Phosphate
 - 2.3 Housing: Integrated inside luminaire enclosure.
 - 2.4 Battery should conform to the latest BIS / International Standards.
- 3. LIGHT SOURCE:**
- 3.1 The light source should be a White LED (W-LED) type.
 - 3.2 System Wattage (LED + Driver): 7 watt.
 - 3.3 LED level efficacy: Not less than 120 Lumen / watt
 - 3.4 Lumen at system level: Minimum 700 lumen (Nominal)
 - 3.5 Average Lux (on road surface with 4 meters pole height, 20 meters spacing on 4 meter wide road with single sided arrangement): **Design to be submitted along with the bid showing contours of maximum, minimum lux and therefore the calculative average lux.**
 - 3.6 LED life: > 50,000 hours
 - 3.7 Driver Type: DC – DC
 - 3.8 Driver Life: $\geq 50,000$ cycles
 - 3.9 Housing: IP 66, Aluminium Pressure Die-cast Housing (full body) with toughened glass.
 - 3.10 Luminaire arm: Powder coated.
 - 3.11 LED connection: All LEDs must be connected in series to ensure fail short mechanism.
 - 3.12 Embossing: Luminaire be embossed with Indian manufacturer Name (Sticker / name plate not allowed).
 - 3.13 Additional embossing: "TREDA".
 - 3.14 W-LEDs should not emit ultraviolet light.
 - 3.15 The light output from the White LED light source should be constant throughout the duty cycle.
 - 3.16 The temperature of heat sink should not increase more than 20 °C above ambient temperature during dusk to dawn operation.
 - 3.17 The Colour temperature of White LED used in the system should be in range of 5000°K – 6500°K.
 - 3.18 The lamps should be housed in an assembly suitable for outdoor use.
 - 3.19 The entry point of electrical cables for electrical connections should be at the bottom the housing with proper sealing to prevent entry of water.
 - 3.20 Reports: LM 79 and LM 80 should be submitted alongwith technical bid.

3.21 Testing facility: Vender should have in-house testing facility.

3.22 Approved make of Luminaire: Reputed Indian Make.

4. CHARGE CONTROLLER / ELECTRONICS:

4.1 Approved make: Reputed Indian.

4.2 Rating: 12 Volt, 7.5 Amps

4.3 Efficiency: $\geq 90\%$.

4.4 Charge Controller should be MPPT / PWM based and should operate at 12V and should have temperature compensation for proper charging of the battery throughout the year.

4.5 Standards to be complied for MPPT performance: EN 50530

4.6 No load / Standby current consumption: < 20 mA.

4.7 Enclosure: IP 66, integrated inside luminaire enclosure.

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

4.9 **The PCB containing the electronics should be capable of solder free installation and replacement.**

4.10 Necessary lengths of wires/cables, switches suitable for DC use and fuses should be provided. All the cables / switches etc. should be ISI Marked.

5. ELECTRONIC PROTECTIONS:

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

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

5.3 Fuse should be provided to protect against short circuit conditions.

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

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

5.6 Adequate protection should be provided against battery reverse polarity.

6. POLE:

6.1 Type: MS Galvanized Tubular Pole

6.2 Total pole height: 4.5 metres

6.3 Size of pole: Lower 2.5 meters length with outer diameter of 88.90 mm, 4 mm thickness and upper 2 meters with outer diameter of 76.10 mm, thickness 3.6 mm.

6.4 Wind speed resistance: 200 km/h

6.5 Base foundation: 1:2:4 (1 Cement: 2 River sand: 4 1st class Brick aggregate/stone chips 20 mm N/size) Cement Concrete at the size of minimum 0.5 m X 0.5 m X 0.75 m (0.60 meter below the ground & 0.15 meter above the ground).

6.6 The pole should have the provision to hold the lamp housing.

6.7 Power Coated Module Mounting frame should be fixed on the pole to hold the SPV module(s). The frame structure should have provision to adjust its angle of inclination to the horizontal between 0 deg. and 30 deg., so that the module(s) can be oriented at the specified tilt angle.

6.8 The pole should have the provision to hold the weather proof lamp housing. The Powder Coated luminaire arm for holding the light assembly should be set at 45 deg. angle to the horizontal or at suitable angle to maximize uniform illumination of desired level over the specified area.

6.9 The pole should have the provision to hold weather proof, acid proof

plastic battery box with the pole for housing the storage batteries.

- 6.10 The battery box assembly should be located at not less than 3 metres height of the pole above ground.

7. INDICATORS:

- 7.1 The system should have two indicators, GREEN and RED.
7.2 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.
7.3 RED indicator should indicate the battery "Load Cut Off" condition.
7.4 The indicators should be so placed as the same could be seen easily from ground.

8. QUALITY AND WARRANTY:

- 8.1 The street lighting system including the battery will be warranted for a period of 5 (five) years from the date of commissioning.
8.2 The PV module(s) will be warranted for a minimum period of 25 years from the date of commissioning. The PV modules must be warranted for their output peak watt capacity, which should not be less than 90% at the end of Ten (10) years and 80% at the end of Twenty five (25) years.
8.3 The Warranty Card to be supplied with the system must contain the details of the system.

9. 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:

- 9.1 Basic principles of Photovoltaics.
9.2 A small write-up (with a block diagram) on Solar Street Lighting System – its components, PV module, battery, electronics and luminaire and expected performance.
9.3 Type, Model number, Voltage & capacity of the battery, used in the system.
9.4 The make, model number, country of origin and technical characteristics (including IESNA LM – 80 report) of W -LEDs used in the lighting system.
9.5 About Charging and Significance of indicators.
9.6 Clear instructions about erection of pole and mounting of PV module (s) and lamp housing assembly on the pole.
9.7 Clear instructions on regular maintenance and trouble shooting of the Solar Street Lighting System.
9.8 DO's and DONT's.
9.9 Name and address of the contact person for repair and maintenance, in case of non-functionality of the solar street lighting system.

SIGNATURE OF BIDDER & SEAL



ANNEXURE – V

DRAFT FORMAT FOR BANK GUARANTEE FOR PERFORMANCE SECURITY

This deed of Guarantee made on day of Month & Year by Name & Address of the bank (hereinafter called the 'GUARANTOR') on the one part, on behalf of M/s Name & address of the Firm (hereinafter called the 'FIRM')) in favour of Director & CEO, Tripura Renewable Energy Development Agency,(TREDA), Vigyan Bhavan, Pandit Nehru Complex, Gurkhabasti, P.O. Kunjaban, Agartala, Tripura -799006 (hereinafter called 'TREDA') on the other part, on the following terms and conditions.

Whereas the FIRM has executed the 'Name of Work'..... under Agreement No..... between FIRM & TREDA and whereas in pursuance of the terms of the agreement, TREDA having agreed to pay the amount for performance security against bank guarantee, this guarantee is being made for the purpose of release of the performance security amount.

Know all people by these presents that the GUARANTOR, hereby undertake to indemnify and keep TREDA indemnified up to the extent of Rs.....during the validity of this bank guarantee and authorize TREDA to recover the same directly from the GUARANTOR. This bank guarantee herein contained shall remain in full force and effect till the expiry of its validity or till any extended period (if extended by the bank on receiving instructions from FIRM.). The liability under the guarantee shall be binding on the GUARANTOR or its successors.

Whereas the GUARANTOR further agrees that their liability under this guarantee shall not be affected by any reason of any change in the offer or its terms and conditions between the FIRM and TREDA with or without the consent or knowledge of the GUARANTOR.

Whereas the GUARANTOR further agrees to pay guaranteed amount hereby under or part thereof, on receipt of first written demand whenever placed by TREDA during the currency period of this guarantee. The GUARANTOR shall pay TREDA immediately without any question, demure, reservation or correspondence.

Whereas the GUARANTOR hereby agrees not to revoke this guarantee bond during its currency period except with the previous consent of TREDA in writing.

Notwithstanding anything contained herein -

- 1 Our liability under this bank guarantee shall not exceed Rs.
 - 2 This Bank guarantee shall be valid up to
 - 3 We are liable to pay the guaranteed amount or any part thereof under this bank guarantee only and only against the written claim or demand on or before
- Sealed with the common seal of the bank on thisday of Month and Year


Witness

- 1..... (Signature and seal of the bank)
- 2.....

SIGNATURE OF BIDDER & SEAL

ANNEXURE – VI(A)**BIDDING SCHEDULE - I****TENDER INVITING AUTHORITY:** Director & Chief Executive Officer, TREDA.**NAME OF ITEM:** Supply, installation & commissioning of Solar PV stand alone W-LED based Street Lighting Systems using Tubular GEL/VRLA Battery in Tripura on turnkey basis as per the specifications mentioned at Annexure – IV (A) of this NIT including 5 (five) years guarantee / warranty and OMC (25 years guarantee / warranty for SPV Module).**NIT:** No.F.6(214)/TREDA/NCES/16/190, dated 19/04/2017.**BIDDER NAME:**

Sl. No.	Description of the Items	Cost of each system FOR including transportation / packaging / installation / Commissioning / warranty excluding of all taxes etc.
1	Supply, installation & commissioning of Solar PV stand alone W-LED based Street Lighting Systems in Tripura using <u>Tubular GEL/VRLA Battery</u> on turnkey basis as per the specifications mentioned at Annexure – IV (A) of this NIT including 5 (five) years guarantee / warranty and OMC (25 years guarantee / warranty for SPV Module).	Rs. _____ (Rupees _____)
2	Capacity to supply the systems per month	_____ nos.

Date**Signature of bidder & seal****SIGNATURE OF BIDDER & SEAL**


ANNEXURE – VI(B)**BIDDING SCHEDULE - II**

TENDER INVITING AUTHORITY: Director & Chief Executive Officer, TREDA.

NAME OF ITEM: Supply, installation & commissioning of Solar PV stand alone W-LED based Street Lighting Systems using Lithium Ferro Phosphate Battery in Tripura on turnkey basis as per the specifications mentioned at Annexure – IV(B) of this NIT including 5 (five) years guarantee / warranty and OMC (25 years guarantee / warranty for SPV Module).

NIT: No.F.6(214)/TREDA/NCES/16/190, dated 19/04/2017.

BIDDER NAME:

Sl. No.	Description of the Items	Cost of each system FOR including transportation / packaging / installation / Commissioning / warranty excluding of all taxes etc.
1	Supply, installation & commissioning of Solar PV stand alone W-LED based Street Lighting Systems in Tripura using <u>Lithium Ferro Phosphate Battery</u> on turnkey basis as per the specifications mentioned at Annexure – IV (B) of this NIT including 5 (five) years guarantee / warranty and OMC (25 years guarantee / warranty for SPV Module).	Rs. _____ (Rupees _____)
2	Capacity to supply the systems per month	_____ nos.

Date

Signature of bidder & seal

SIGNATURE OF BIDDER & SEAL

[Handwritten Signature]
19/4/17

ANNEXURE – VI(C)**BILL OF MATERIAL OF LED BASED SOLAR STREET LIGHTING SYSTEMS
USING TUBULAR GEL /VRLA BATTERY**

Sr. No.	Description	Price per unit (In Rs.)
1)	SPV Module (60Wp) Make: _____	
2)	Battery (Tubular GEL /VRLA, 12V, 40 AH) Make: _____	
3)	Charge Controller Make: _____	
4)	LED Luminaire Make: _____	
5)	Pole including Module Mounting Structure, Luminaire arm, Battery Stand etc.	
6)	Battery Box, Connecting cables and Hardware	
7)	Installation & Commissioning	
8)	Insurance & Transportation etc.	
9)	Warranty / Guarantee and OMC obligations for 5 (five) years	
10)	Running of Servicing Centres for 5 (five) years	
11)	Any others (Pl. specify)	
	<i>TOTAL</i>	
	Applicable taxes etc. with details breakup	
	<i>Total composite price per system</i>	

Date**Signature of bidder & seal****SIGNATURE OF BIDDER & SEAL**

Handwritten signature and date: 19/11/17

ANNEXURE – VI(D)**BILL OF MATERIAL OF LED BASED SOLAR STREET LIGHTING SYSTEMS
USING LITHIUM FERRO PHOSPHATE BATTERY**

Sr. No.	Description	Price per unit (In Rs.)
1)	SPV Module (40Wp) Make: _____	
2)	Battery (180 Wh Lithium Ferro Phosphate Battery) Make: _____	
3)	Charge Controller Make: _____	
4)	LED Luminaire Make: _____	
5)	Pole including Module Mounting Structure, Luminaire arm etc.	
6)	Connecting cables and Hardware	
7)	Installation & Commissioning	
8)	Insurance & Transportation etc.	
9)	Warranty / Guarantee and OMC obligations for 5 (five) years	
10)	Running of Servicing Centres for 5 (five) years	
11)	Any others	
	<i>TOTAL</i>	
	Applicable taxes etc. with details breakup	
	<i>Total composite price per system</i>	

Date**Signature of bidder & seal****SIGNATURE OF BIDDER & SEAL**

ANNEXURE – VII**BID INFORMATION SHEET**

Name of work	<p>1) Supply, installation & commissioning of Solar PV stand alone W-LED based Street Lighting Systems in Tripura using <u>Tubular GEL/VRLA Battery</u> on turnkey basis as per the specifications mentioned at Annexure – IV (A) of this NIT including 5 (five) years guarantee / warranty and OMC (25 years guarantee / warranty for SPV Module).</p> <p>2) Supply, installation & commissioning of Solar PV stand alone W-LED based Street Lighting Systems in Tripura using <u>Lithium Ferro Phosphate Battery</u> on turnkey basis as per the specifications mentioned at Annexure – IV (B) of this NIT including 5 (five) years guarantee / warranty and OMC (25 years guarantee / warranty for SPV Module).</p>
NIT No.	No.F.6(214)/TREDA/NCES/16/190, dated 19/04/2017
Last date of submission of bid	15th May, 2017 at 3:30 PM
Schedule date of pre-bid meeting	5th May, 2017 at 12:00 noon
Schedule date of opening of tender	15th May, 2017 at 4:00 PM
Cost of tender document	Rs. 3,000/- (Rupees three thousand)
Amount of EMD required	Rs. 11,69,500/- (Rupees eleven lakhs sixty nine thousand five hundred) only
Address for submission of bid document	Director & Chief Executive Officer, Tripura Renewable Energy Development Agency, Vigyan Bhawan, Pandit Nehru Complex, Gorkhabasti, Agartala Ph-(0381)-232-6139, Tele - fax - (0381) 232-5900, Email-tredaagartala@gmail.com Web URL- www.treda.nic.in

IMPORTANT NOTE: Prospective bidders are requested to remain updated for any Notices/Amendments/Clarifications etc. to the NIT document through the website www.tripura.gov.in & www.treda.nic.in. No separate Notices would be issued for such Notices/Amendments/Clarifications etc. in the print media or individually. All the information related to this NIT shall be uploaded in the website www.tripura.gov.in & www.treda.nic.in.

SIGNATURE OF BIDDER & SEAL

[Handwritten Signature]
19/04/17