

Rate Contract for Design, Supply, Installation, Testing & Commissioning including 5 years Comprehensive Maintenance Contract (CMC) of 60 W LED based solar High Mast Lightning systems (SHMLS) including Remote Monitoring System (RMS) & Global Positioning System (GPS) with Lithium Ferro Phosphate Battery on Turnkey basis in the state of Jharkhand.

Government of Jharkhand.

Tender Reference No.: NIB: 05/JREDA/SHMLS/RC/26-27



Jharkhand Renewable Energy Development Agency (JREDA)

3rd Floor, S.L.D.C. Building, Kusai Colony, Doranda, Ranchi-834502.

Ph.: 0651-2491161, Fax: 0651-2491165,

E-mail: info@jreda.com; Website: www.jreda.com

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**Govt. of Jharkhand
Energy Department
Jharkhand Renewable Energy Development Agency (JREDA)
3rd Floor, S.L.D.C. Building, Kusai Colony, Doranda, Ranchi-833672.
Ph.: 0651-2491161, Fax: 0651-2491165,
E-mail: info@jreda.com; Website: www.jreda.com**

e-Procurement Notice

Tender reference no.: 05/JREDA/SHMLS/RC/26-27

Dated:21.04.2026

1	Name of the work	Rate Contract for Design, Supply, Installation, Testing & Commissioning including 5 years Comprehensive Maintenance Contract (CMC) of 60 W LED based solar High Mast Lightning systems (SHMLS) including Remote Monitoring System (RMS) & Global Positioning System (GPS) with Lithium Ferro Phosphate Battery on Turnkey basis in the state of Jharkhand.
2	Estimated Project cost (Rs.)	50,00,00,000/- inclusive GST
3	Period of Completion	04 (Four) Months
4	Contract Period from the date of ITC	05 (Five) Years
5	Date of publication of NIT on website: http://jharkhandtenders.gov.in	30.04.2026 (Thursday)
6	Last date & time for receipt of online bids	25.05.2026 (Monday) up to 05:00 PM
7	Submission of Bid fee and EMD through Online Via SBI Payment Gateway of Jharkhand Tenders.	25.05.2026 (Monday) up to 05:00 PM
8	Technical Bid Opening Date	28.05.2026 (Thursday) at to 03:00 PM.
9	Name & address of office inviting tender	Director, Jharkhand Renewable Energy Development Agency (JREDA) 3rd Floor, SLDC Building, Kusai, Doranda, Ranchi- 833672 (Jharkhand)
10	Contact no. of procurement officer	0651-2491163/67/61/7903935514
11	Helpline no. of e-procurement	0651-2491163/67/61

Any corrigendum/addendum can be seen on website: <http://jharkhandtenders.gov.in> & www.jreda.com. Further details can be seen on website: <http://jharkhandtenders.gov.in> & www.jreda.com

**Sd/-
Director,**

Section -1
Tender Reference No.: NIB: 05/JREDA/SHMLS/RC/26-27
List of Important dates & details of Bids

1.	Name of work	Rate Contract for Design, Supply, Installation, Testing & Commissioning including 5 years Comprehensive Maintenance Contract (CMC) of 60 W LED based solar High Mast Lightning systems (SHMLS) including Remote Monitoring System (RMS) & Global Positioning System (GPS) with Lithium Ferro Phosphate Battery on Turnkey basis in the state of Jharkhand, Government of Jharkhand.
2.	Tender reference no.	05/JREDA/SHMLS/RC/26-27
3.	Estimated Project cost (Rs.)	50,00,00,000/- inclusive GST
4.	Benchmark Cost of Unit SHMLS	260900.00 (Unit Rate Excluding GST and Inclusive of all other taxes & charges)
5.	Period of contract	05 (Five) Years
6.	Work completion period	06 (Six) Months
7.	Mode of submission of tender	Online through www.jharkhandtenders.gov.in
8.	Maximum/Minimum lot size	Maximum: 80 Nos. Minimum: 20 Nos. No bidder shall submit bid for quantity less than minimum lot size & more than maximum lot size.
9.	Submission of Bid fee) (non-refundable) through Online Via SBI Payment Gateway of Jharkhand Tenders.	❖ For General Bidders: ₹ .11,800.00/- ❖ For MSEs of Jharkhand) :- Nil.
10.	Submission of EMD (Refundable) through Online Via SBI Payment Gateway of Jharkhand Tenders. {This is mandatory}	❖ For General Bidder: Rs. 454593.00 /- ❖ For MSME of Jharkhand: Nil.
11.	EMD Validity	12 (Twelve) months from the last date of receipt of bids.
12.	Date of publication of NIT on website: http://jharkhandtenders.gov.in	❖ 30.04.2026 (Thursday)
13.	Date of Pre-bid Meeting	❖ 08.05.2026 (Friday) at 02:00 PM
14.	Period of downloading of bidding documents	❖ 25.05.2026 (Monday) up to 05:00 PM ❖ 25.05.2026 (Monday) up to 05:00 PM
15.	Bid online submission	❖ 25.05.2026 (Monday) up to 05:00 PM
16.	Technical bid opening date	❖ 28.05.2026 (Thursday) at to 03:00 PM.
17.	Tentative date of opening of online Financial Bid	❖ To be intimated later
18.	Authority inviting bids	Director, Jharkhand Renewable Energy Development Agency (JREDA)
19.	Address	Jharkhand Renewable Energy Development Agency (JREDA) 3 rd Floor, SLDC Building, Kusai, Doranda, Ranchi 834502. Ph. No: Website: www.jreda.com Email: info@jreda.com

Details of documents to be furnished for online bidding

1. Scanned copies of the following documents to be up-loaded in .pdf format on the website <http://Jharkhandtenders.gov.in>.
 - i. Online Payments towards Tender fee.
 - ii. Online payments towards EMD.
 - iii. Receipt of Tender Fee and EMD submission through Online Via SBI Payment gateway of Jharkhand Tender.
 - iv. Firm's registration certificate company/Pvt. Ltd./ Proprietorship firm/Partnership/corporation/ LLP.
 - v. **Registration certificate of MSMEs of Jharkhand (Certificate issued by GM DIC Industry Dept. for system/components manufacturing)**
 - vi. A bidder can either apply under the General category or in the MSEs category therefore bidder has to submit an undertaking which should clearly mention the category (General/MSEs of Jharkhand). Bid will be evaluated under the provision of that particular category.
 - vii. **In case the bidder wants to avail the benefit of MSEs of Jharkhand then bidder will be submitted:**
 - a) Registration certificate of MSEs of Jharkhand/ UDYAM issued by Industry Dept. duly verified by GM-DIC mentioning whether unit is existing & functional.
 - b) A registered manufacturing company/firm/corporation in India Including MSME of Jharkhand of least one of the major components namely Modules or Battery or Luminary (Confirming to relevant National/International standards).
 - c) The bidder shall furnish the relevant certificate of the concerned District Industry Center indicating that they are manufacturers of SPV Modules, Battery, or Luminary along with a test report as per NIB.
 - viii. ITR for the assessment year AY 2023-24, 2024-25 & 2025-26 or Last 3 Consecutive Financial Years.
 - ix. Audited Financial Statements (i.e., Balance Sheet & Statement of Profit or Loss) FY 2022-23, 2023-24 & 2024-25 or for the last 3 Consecutive financial years certified by a Chartered Accountant
 - x. Annual Turnover (FY-2022-23, 2023-24 & 2024-25) or last 3 Consecutive Financial Years certified by Chartered Accountant with UDIN.
 - xi. Net Worth certificate (FY-2022-23, 2023-24 & 2024-25) or last 3 Consecutive Financial Years certified by Chartered Accountant with UDIN.
 - xii. GST certificate.
 - xiii. PAN Card.
 - xiv. List of current litigant cases in which the bidder is involved (in format given in ITB).
 - xv. An affidavit for non-engagement of related persons.
 - xvi. Authorized address & contact numbers of the bidder as per instruction in the Notice Inviting Bid duly digitally signed.
 - xvii. Bid Capacity Declaration.
 - xviii. Uploaded documents of valid successful bidders will be verified with the original before signing the agreement.
 - xix. NIB is not to be uploaded by the bidder. The bidder must give an affidavit stating agree/disagree on the conditions in the NIB. The bidders, who disagree on the conditions of NIB, cannot participate in the tender.
 - xx. Annexure-1: Covering letter.

- xxi. Annexure-2: Checklist for Technical Bid.
- xxii. Annexure-3: Information about the bidding firm.
- xxiii. Annexure-4: Declaration by the bidder.
- xxiv. Annexure-5: Annual Turnover.
- xxv. Annexure-6: Net Worth certificate.
- xxvi. Annexure-7: Format for power of attorney for signing of the bid.
- xxvii. Annexure-8: Proof of Supply Installation & Commissioning of Solar High Mast Lighting System/Solar Flood Light System in any **SNA/Govt. organization/PSU** in the last seven years from date of Submission of bid. Attach a copy of Work Order /Purchase Order along with completion certificate/Experience Certificate.
- xxviii. Annexure-10: Contact Person for the NIB.
- xxix. JREDA has the authority to verify the above-mentioned Annexures. If any manipulation in data is found, JREDA has the authority to Debar/ Blacklist the bidder from JREDA.
- xxx. The Bidder participating in this tender must submit the **JREDA Contractor Registration Certificate**.
- xxxi. The Bidder participating in this tender must submit the Valid registered **Electrical Contractor License**.
- xxxii. The duly filled-in & digitally signed Price Bid (.xls and .pdf) part will not be submitted in the Technical Bid. In case the Price Bid is submitted along with the technical part, the bidder will be disqualified.
- xxxiii. NIB is not to be uploaded by the bidder. The bidder must give an affidavit stating agree/disagree on the conditions in the NIB. The bidders, who disagree on the conditions of NIB, cannot participate in the tender.
- xxxiv. It is mandatory for all the bidders to submit their Technical and Financial Bid ONLINE only via e-tendering portal.

B – Online Financial Bid: -

- i) Duly Quoted & digitally signed Bill of Quantity (BOQ) in the file supplied by JREDA in .xls format.
- ii) Declaration by Bidder in the format Section – 6 form of Bid in .pdf format.

**** All the documents should be digitally signed.**

Note: -

1. Only those models of Solar PV Mono-crystalline Module manufacturers will be enlisted under the BIS Standards and have the following minimum 19 % Mono-crystalline Module efficiency.
2. Only those Lithium Ferro Phosphate Battery Manufacturers that comply with the BIS Standards will be used in Solar High Mast Lighting Systems.
3. Luminary Test Certificate 60W LM-79 Certificate approved by NABL, NISE or MNRE accredited Laboratory. **Only valid test reports of Luminary will be valid from the date of publication of tender (within three years of issuance of the test certificate). If the Luminary LM-79 report is found older than three years, the Bidder will be disqualified.**
4. Solar High mast System should be integrated with Remote Monitoring system as per requirement of JREDA. **A Certificate issued by MNRE accelerated Labs for Luminaries Only 60 W should be submitted for the Solar High Mast Lighting System. Only valid test reports of Luminary will be valid from the date of publication of tender (within three years of issuance of the test certificate). If the Luminary LM-79 report is found older than three years, the Bidder will be disqualified.**

Section -2
Tender Reference No.: NIB: 05/JREDA/SHMLS/RC/26-27
Instructions to Bidders

Detailed instructions & documents to be furnished for online bidding

1. The guidelines to submit a bid online can be downloaded from the website <http://jharkhandtenders.gov.in>.
2. Interested bidders can download the bid from the website "<http://jharkhandtenders.gov.in>".
3. To participate in the bidding process, bidders must get a 'Digital Signature Certificate (DSC)' as per the Information Technology Act 2000, to participate in online bidding. This certificate will be required for digitally signing the bid. Bidders can get above mention digital signature certificate from any approved vendor (CCA). Bidders, who already possess valid Digital Certificates, need not procure new Digital Certificate.
4. The bidders must submit their bids online in electronic format with a Digital Signature. The bids without digital signatures will not be accepted. No proposal will be accepted in physical form.
5. Bids will be opened online as per the schedule mentioned in Section 1.
6. Bidders should get ready with scanned copies of the cost of documents & Online EMD as specified in the tender document. Before submission of online bids, bidders must ensure that a scanned copy of all the necessary documents has been attached to the bid.
7. Receipts of Online Submission of EMD & Bid Fee specified in the tender documents should be online (scanned copies) otherwise tender summarily will be rejected.
8. Uploaded documents of valid successful bidders will be verified with the original before signing the agreement. The valid successful bidder must provide the originals to the concerned authority. The department will not be responsible for delays in online submission due to any reason.
9. All the required information for the bid must be filled out and submitted online. If the bid is not found to be uploaded online to the website (<http://Jharkhandtenders.gov.in>), No hard copy is required to be submitted to the office of JREDA.
10. The quoted rates should be in line with the "Jharkhand P.W.D. Code, which is implemented by vide Sankalp letter no. 2146(s) Dated 09/09/2020".
11. Other details can be seen in the bidding document
12. Note: The agency needs to submit the amount of ₹ . **11,800.00** /-online mode via SBI payment gateway on <https://jharkhandtenders.gov.in>. for the participation in the NIB.
13. Participating Bidder Must possess and submit a valid registered Electrical Contractor license in the appropriate category.
14. Participating Bidder Must Possess Electrical Connection as per norms of the Jharkhand State Electricity Commission (JSERC) Supply Code and tariff regulations as applicable to the bidder.
15. The Successful bidder shall supply such Solar Components namely solar modules, batteries, and SHML poles etc. for installation and commissioning that are only manufactured by reputed and trusted companies /make with proven track record. JREDA reserves the right regarding issue of suitable guidelines from time to time in this regard. Such make or model of Solar appliances and Components which have been used in the ongoing work in the last five years in JREDA with quality and performance related issues may be avoided by the successful bidder.
16. JREDA reserves right to take the necessary decision to award the work in respect to those Agencies who

were awarded the work earlier and has not carried out Comprehensive Maintenance Contracts (CMC) regularly and properly with respect to such awarded work.

17. Successful Bidder shall have to disclose their Local office address in Jharkhand. Further it has to also maintain requisite stock for carrying out CMC (Comprehensive Maintenance Contract) work after installation.
18. Successful bidder who are awarded to work, shall at the time of Submission of bill for payment, be required to submit valid E-Way Bill as per GST Act & Rules for verification to authenticate the invoices raise.
Further, Bidder is bound to co-ordinate with Work In charge/JREDA representative for sharing of necessary details for verification of E-Way Bills etc. as and when required.
19. Bank Guarantees must be confirmed through SFMS (Structured Financial Messaging System) mode as per the RBI Guidelines. Additional confirmation through Physical mode, electronic mode etc. may also be facilitated.

IMPORTANT NOTE TO BIDDERS:

Timely Submission of an offer to JREDA:

1. The bidders have to submit their bids online in electronic format with digital Signature along with
2. Receipt of Tender Fee and EMD submission through Online Via SBI Payment gateway of Jharkhand Tender. The bids without digital signature will not be accepted. No proposal will be accepted in physical form. Otherwise, the offer will not be considered and no further communication in the matter will be entertained. Please note that Bid is not to be submitted in physical form.
3. The bid will not be accepted in any case after the due date and time of receipt of the Tender, irrespective of delay due to any reasons, circumstantial or otherwise and JREDA does not assume any responsibility for late receipt of the Tender.
4. All interested parties are requested to understand the Tender in detail to comply with JREDA's requirements including but not limited to the fees and deadlines, selection criteria, selection methodology, scope of work, and minimum technical standards. They shall strictly abide by all terms prescribed in this Tender and provide accurate information to the best of their knowledge without misleading the Company to be considered for participation in this Project.
5. It is **mandatory** for all the bidders to submit their Technical and Financial bids online only via the e-tendering portal. **Technical Bid (techno-commercial Bid):-**
6. All the bidders must submit their Technical Bid (Techno-commercial Bid) Scanned copy of the documents & Transition receipt of the Tender Fee & EMD through online (e-tendering) at the scheduled time. Technical Bid in hard copy (physical form) shall not be considered.
7. Tender Fee and EMD shall be submitted through Online Via SBI Payment gateway of Jharkhand Tenders. It is mandatory for all bidders to submit their Price-Bid only through online (e-tendering). The Price bid submitted in physical form will not be considered for its opening.
8. Only online submitted price bids will be considered for evaluation. Any technical/commercial query about this Tender should be referred to:

Director,

Jharkhand Renewable Energy Development Agency (JREDA)

3rd Floor, SLDC Building, Kusai Colony Doranda,

Ranchi-834 002, Jharkhand.

Ph: 0651- 2491 161

Email: info@jreda.com Website: www.jreda.com

9. JREDA reserves the right to accept/reject any or all tenders without assigning any reasons thereof. Bidders are requested to be in touch with the above-mentioned website till the opening of the price bid to know the latest status

Details of documents to be furnished for online bidding

Scanned copies of the following documents are to be uploaded in .pdf format on the website

B – Financial Bid – (Finance Cover)

- iii) Duly Quoted & digitally signed Bill of Quantity (BOQ) in the file supplied by JREDA in .xls format.
- iv) Declaration by Bidder in the format Section – 6 form of Bid in .pdf format.

NOTE: - a) All the documents should be digitally signed.

Section-3
Notice Inviting Bid
Tender Reference No.: NIB: 05/JREDA/SHMLS/RC/26-27

Preamble:

As part of Solar Photovoltaic Programmer, JREDA invites bid for “**Rate Contract for Design, Supply, Installation, Testing & Commissioning including 5 years Comprehensive Maintenance Contract (CMC) of 60 W LED based solar High Mast Lightning systems (SHML) including Remote Monitoring System (RMS) & Global Positioning System (GPS) with Lithium Ferro Phosphate Battery on Turnkey basis in the state of Jharkhand.**

Government of Jharkhand for short listing of experienced & eligible bidders to whom work shall be allocated for successful execution of the project in a defined time frame.

No bidders shall submit bid for a quantity less than the minimum lot size and more than the maximum lot size.

Bidders claiming benefit of Micro & Small Enterprises (MSEs) of Jharkhand: -

The bidder should fulfill the following technical eligibility conditions: -

1. The bidder should be a registered company /Pvt. Ltd. / Proprietorship/firm/Partnership/corporation/ LLP in India. Authorized dealer’s companies/firm/corporation or subcontractors are not eligible to participate.
2. Bidders claiming benefit of Micro & Small Enterprises (MSEs) of Jharkhand: -
The manufacturing unit is located within the State of Jharkhand. The Head Office or Corporate Office of such registered unit/company/enterprise is within the territorial jurisdiction of Jharkhand.

MSE is registered with the Directorate of Industries/District Industries Centre, Khadi and Village Industries Board, Directorate of Handloom, Sericulture and Handicraft of Jharkhand Govt, Industrial Area Development Authorities and National Small Industries Corporation Ltd.

or

MSEs having Udyog Aadhar Number issued by Ministry of Micro, Small and Medium Enterprises, Govt to be duly verified, whether the unit is existing and functional by GM, DIC/MD, Industrial Area Development Authorities/Director, Industries, GOJ”

3. The MSEs /other Enterprises and units must be registered under the Jharkhand Goods and Services Tax (JGST) Act 2017 or The Central Goods & Services Tax (CGST) Act 2017.
4. Tender Documents may be downloaded from the website (<http://jharkhandtenders.gov.in>) & www.jreda.com. To view, download, and for any other updates regarding this Tender, kindly check www.jreda.com. To participate in the bidding process, the bidder must get a ‘Digital Signature Certificate’ as per the Information Technology Act – 2000 to participate in online bidding. This certificate will be required for digitally signing the bid. Bidders, who already possess valid Digital Certificate, need not to procure new Digital Certificate.
5. The MSE/other enterprise and unit must have encouraged local people in employment.
6. The MSE/other enterprise and unit must have complied with all statutory and legal formalities of concerned regulators/Act.

7. A registered manufacturing company/firm/corporation in India (Including MSME of Jharkhand) of at least one of the major components namely **Modules or Battery or Luminary** (Confirming to relevant National/International standards) With Proper Test Reports as per NIB . The bidder shall furnish either the relevant certificate or the concerned industry department certificate indicating they are the manufacturers of Modules or Battery or Luminary.
8. Solar PV Mono-crystalline Module Manufacturers will be enlisted with the BIS Standards and have a minimum **Mono-crystalline Module efficiency of > =19%.**
9. Battery (Lithium Ferro Phosphate Battery 120 AH,12.8 V/25.6V) Test certificate complies with the BIS Standards to be used in Solar High Mast Lighting System.
10. Luminary test certificate complies with LM80 & LM79.
11. Certificate by MNRE Accredited Labs of Luminaries should be submitted in Solar High Mast Lighting System.
12. The bidder should be a functional organization. To substantiate this claim, the bidder should submit the copy of the audited balance sheet with profit & loss account for last 3 consecutive years **or** from the date of establishment to 31.03.2025, whichever is applicable.
13. Registered Micro, Small & Medium Enterprise (MSME) of Jharkhand should submit the attested copy of Registration given by the Industry Department, Govt. of Jharkhand and GM, DIC/MD, Industrial Area Development Authorities/Director, Industries, GOJ”.
14. **The bidder must have:**
 - A valid GST Registration and PAN
 - Contractor Registration in JREDA is mandatory to participate in this tender.**
 - Valid registered **Electrical Contractor license** in the appropriate category

Technical Requirements:

Tender reference no.: NIB: 02/JREDA/SHMLS/RC/25

- A. **Only such models of Mono-crystalline-Silicon technology-based Solar PV Modules Manufacturers will be enlisted under BIS Standards and have the following minimum Mono-crystalline Module efficiency ≥19 %.**
- B. Test certificate & BIS of Lithium Ferro Phosphate Battery 120/AH, 12.8 V/25.6V to be used in Solar High Mast Lighting System with minimum Battery Capacity as per below Table: -

LED Capacity (W) (Output Power of MPPT)	60 W
Battery Specification (V, AH)	12.80,120 AH
Minimum Battery Capacity (Wh)	1536.00

- C. Test certificates of solar High-mast Pole should be submitted for the Solar High Mast Lighting System.
- D. Structural drawing including foundation drawing, Module, Battery, Luminary, Mounting Drawing and electrical drawing of the High Mast Pole from the installer should be submitted duly verified and certified by the Structural Engineer / Chartered Engineer along with verified by the Manufacturer.
- E. Bidder should assure that the Solar High Mast Pole & MMS Drawing should be Technical Feasible & Load Bearing Capacity should be calculated.
- F. Test certificate by NABL Accredited Labs of Luminaries should be submitted in Solar High Mast Lighting System.
- G. Batteries should fulfill the required specification given in the Technical Specification of the Bid. Capacity Test, Charge/Discharge efficiency, and Self-Discharge should be as per MNRE requirements, and valid test reports with authorization letter of the manufacturer should be uploaded as Annexure.

- H. The certificate should be in the form of an undertaking letter from the manufacturer complying with all the technical specifications of the battery.
- I. The offered batteries shall be as per BIS of any reputed brand approved. LiFePO₄ battery, made of Only cylindrical cells, with individual rating of minimum 3.2V, Life cycle of minimum 2000. Preferable brands like HX, FB Tech, BKK, XTT or Equivalent.
- J. The Participant should have valid GST and PAN.
- K. The Bidder should confirm that they have the resources and capability to supply the offered quantity within the scheduled period in the form of an undertaking.

Award of Work and Empanelment Procedure after the opening of Financial Bid:

- i. The price of Unit SHMLS is the rate contract.
- ii. The bidders who are found to be successful in technical bids shall be empaneled for solar high mast light work till the financial opening of the tender.
- iii. After opening of financial Bid, the lowest rate i.e., the L1 rate of 60 watts are discovered for the rate of unit quantity would be the appropriated rate for awarding the work.
- iv. **In case the price Bid is submitted with the technical part, the bidder will be disqualified by JREDA.**
- v. Allocation of the quantity to MSME registered in Jharkhand will be made as per the provisions of Jharkhand Procurement Policy. The MSME should be functional & have a running production unit in Jharkhand and should fulfill all the criteria as fixed in Jharkhand Procurement Policy.
- vi. JREDA reserve to right to allot the work to the bidders at the L1 rate based on the quoted quantity / bid capacity as per their Technical & Financial Qualification.
- vii. The successful bidders, who either fail to enter into agreements for the allocated quantity or fail to execute the work as per the work order, their EMD/Security deposit may be forfeited and may be blacklisted under intimation to MNRE and other Nodal Agencies in the Country.
- viii. JREDA reserve to right to increase or decrease the Quantity of SHMLS as per the requirement.
- ix. The participating bidder shall supply only Solar Component's namely solar modules, Luminary ,batteries, and pole for installation and commissioning that are manufactured by reputed and established companies /make with proven performance record. Only Trusted Solar appliances and Components will be used by Bidder while going through the supply and installation work keeping mind about past Complaints in JREDA regarding components used in previous installation against CMC Operation in last five Years.
- x. JREDA Reserve the right Regarding issue of Suitable Guidelines for make of reputed Solar Components. Only Trusted Solar appliances and Components will be used by Bidder. It is required that all equipment and appliances proposed for supply, installation, and commissioning - such as Solar PV systems, Solar Modules, and other allied components - must be procured from reputed and established manufacturers.

This is necessary to ensure quality, reliability, and long-term performance of the installed systems.

The following are the major components of the system:

- **Solar PV Modules**
- **Battery**
- **Luminary**
- **SHMLs**

Pole

Section-4
INSTRUCTIONS TO BIDDERS
Tender Reference No.: NIB: 05/JREDA/SHMLS/RC/26-27
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Instructions to Bidders (ITB)
Tender reference no.: NIB: 05/JREDA/SHMLS/RC/26-27
A-General

1. Scope of Bid

- 1.1 The JREDA invites bids for the work as described in these documents and referred to as "the works". The name and the identification number of the works are provided in the Notice Inviting Bid.
- 1.2 The successful Bidder will be expected to complete the Works by the Intended Completion Date specified in Part (I) - General Conditions of Contract.
- 1.3 Throughout these documents, the terms "bid" and "tender" and their derivatives (bidder/ tenderer, bid/tender, bidding/ tendering) are synonymous.

2. Source of Funds

- 2.1 The JREDA has decided to undertake the works of **“Rate Contract for Design, Supply, Installation, Testing & Commissioning including 5 years Comprehensive Maintenance Contract (CMC) of 60 W LED based solar High Mast Lightning systems (SHMLs) including Remote Monitoring System (RMS) & Global Positioning System (GPS) with Lithium Ferro Phosphate Battery on Turnkey basis across the state of Jharkhand.**
- 2.2 **Government of Jharkhand.”** through funds from the Government of Jharkhand to be implemented through JREDA.

3. Eligible Bidders

- 3.1 This Invitation for Bids is open to all bidders as defined in the Notice Inviting Tender (NIT).
- 3.2 Bidders shall not be under a declaration of ineligibility for corrupt and fraudulent practices by the Central Government, the State Government, or any public undertaking, autonomous body, or authority by whatever name called under the works.
- 3.3 **The Bidders who are participating in this tender must have to submit the contractor registration Certificate issued by JREDA.**
- 3.4 **The Bidders who are participating in this tender must have to submit the Firm’s registration certificate.**

4. Qualification of the Bidder

- 4.1 All bidders shall provide in Section 3, Forms of Bid and Qualification information, a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary.
- 4.2 All bidders shall include the following information and documents with their bids in Section 3, Qualification Information unless otherwise stated in the Notice Inviting Bid/ITB.
 - a) Copies of original documents defining the constitution or legal status, place of registration, and principal place of business.
 - b) Copy of the written power of attorney of the signatory of the Bid for bidding.

- c) Experience in works of a similar nature and size for each of the last seven years with certificates from the concerned officer or competent authority.
- d) ITR for the assessment year AY 2023-24, 2024-25 & 2025-26 or Last 3 Consecutive Financial Years.
- e) Audited Financial Statements (i.e., Balance Sheet & Statement of Profit or Loss) FY 2022-23, 2023-24 & 2024-25 or for the last 3 Consecutive financial years certified by a Chartered Accountant
- f) Annual Turnover (FY-2022-23, 2023-24 & 2024-25) or last 3 Consecutive Financial Years certified by Chartered Accountant with UDIN.
- g) Net Worth certificate (FY-2022-23, 2023-24 & 2024-25) or last 3 Consecutive Financial Years certified by Chartered Accountant with UDIN.
- h) Authority to seek references from the Bidder's bankers;
- i) Information regarding any litigation or arbitration during the last seven years in which the Bidder is involved, the parties concerned, the disputed amount, and the matter.
- j) Participating Bidder Must possess and submit a valid registered Electrical Contractor license in the appropriate category.
- k) Participating Bidder Must have submit JREDA Registration Certificate.
- l) Bidders are required to possess and submit a valid and duly registered Electrical Contractor License in the appropriate category as per applicable regulatory provisions.
- m) Bidders are required to maintain an active valid electrical connection, in accordance with the norms prescribed under the Jharkhand State Electricity Regulatory Commission Supply Code and applicable tariff regulations. This requirement is essential to establish that the bidder is operating within the framework applicable to small industries, workshops, or manufacturing units.
- n) Bidders are required to clearly specify their category of participation at the time of submission of bids. The permitted categories are as follows:
 - General Category
 - MSME Category
- o) Necessary supporting documents must be provided in case of MSME Category.
- p) Bidders are required to furnish complete details of their registered office address along with adequate information regarding maintenance stock and infrastructure. This disclosure is essential to assess the bidder's capability to effectively carry out AMC/CMC services post-installation and to ensure timely maintenance support.

****Bids from joint ventures are not allowed.**

4.3 . To qualify for the award of the Contract, each bidder should meet the following criteria: -

4.3.1 Turnover Requirement: -

(A) For General Bidder: The Average Annual Turnover during last three years ending on 31.03.2025 should be equal or more than ₹ 1704721.00 for minimum lot size and thereafter in same proportion for higher/Quoted quantity.

(B) For MSEs of Jharkhand:

The Average Annual Turnover during last three years ending on 31.03.2025 should be equal or more than ₹ 568241.00 for minimum lot size and thereafter in same proportion for higher/Quoted quantity.

The certificate should be issued by CA who has performed audit of accounts with UID no. as per the Performa given in Annexure-5.

New-MSME is defined as MSME which have not completed 3 financial years from the date of establishment of manufacturing unit such as Module/ Cells/ Batteries / Luminaries.

A: - Unit has not completed 1 Year – Financial Soundness Certificate issued from Bank is required not less than ₹ 568241.00 for minimum lot size.

B: - Unit has not completed 2 Year – should have annual turnover at least ₹ 568241.00 for minimum lot size.

C: - Unit has not completed 3 Year - should have Average Annual Turnover of last 2 years equal to ₹ 568241.00 for minimum lot size.

4.3.2 Net worth Requirement: -

For General/MSME of Jharkhand bidder: Bidder should have a Positive Net Worth.

The net worth certificate should be issued by CA with UIDno. as per the Performa given in Annexure-6

4.3.3 Experience Requirement: -

(A) For General Bidder: -

Experience of having successfully completed similar works Solar High Mast Light /Solar Street Light System in any SNA / Govt. Organization / PSU during the last 7 years ending the last day of the month previous to the one in which applications are invited should be either of the following: -

Three similar completed works each costing not less than the amount equal to ₹ 2272961.00 for minimum lot size and thereafter in same proportion for higher/Quoted quantity.

Or

Two similar completed works each costing not less than the amount equal to ₹ 2841201.00 for minimum lot size and thereafter in same proportion for higher/Quoted quantity.

Or

One similar completed work each costing not less than the amount equal to Rs. ₹ 4545921.60 for minimum lot size and thereafter in same proportion for higher/Quoted quantity.

Note: -

Project wise similar Work should be defined in tender documents.

(B) For MSME of Jharkhand:

One similar completed work costing not less than the amount equal to ₹ 568240.20 for minimum lot size and thereafter in same proportion for higher quantity from PSU/Govt. Organization/ SNA in last seven years.

A copy of the work order and certificate indicating the successful execution of the work should be enclosed.

For New MSEs of Jharkhand: New-MSME of Jharkhand shall be exempted from the Experience requirement.

The copies of work orders and work completion certificates issued by procuring authorities indicating successful execution and performance certificate must be enclosed as per Annexure.

4.3.4 Earnest Money Deposit (EMD):

❖ For General Bidder: ₹ 454593.00 /-

For MSME/NEW MSME of Jharkhand: Nil.

Online Via SBI Payment Gateway of Jharkhand Tenders

The bidders must submit their bids Online in electronic format with a digital signature along with a Receipt of Tender Fee and EMD submission through Online Via SBI Payment gateway of Jharkhand Tender.

4.3.5 Each bidder must produce:

- i) PAN
- ii) An affidavit that the information furnished with the bid document is correct in all respects.
- iii) Such other certificates as defined in the Notice Inviting Bid (NIT). Failure to produce the certificates shall make the bid non-responsive.
- iv) Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

- v) Made misleading or false representations in the forms, statements, affidavits, and attachments submitted as proof of the qualification requirements;

or

Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, and financial failures.

- vi) Participated in the previous bidding for the same work and quoted unreasonably high or low bid prices and could not submit rational justification for it to JREDA.

5. One Bid per Bidder

5.1 Each Bidder shall submit only one Bid for one work. A Bidder who submits more than one Bid will be disqualified.

5.2 In exceptional circumstances, before the expiry of the original time limit, the JREDA may request the bidders for an extension of the period of validity for a specified additional period. The request and the bidder's responses shall be made in writing or by email. A bidder may refuse the request without forfeiting his Earnest Money. A bidder agreeing to the request will not be required or permitted to modify his bid but will be required to extend the validity of his earnest money for a period of the extension, and in compliance with ITB in all respects.

6. Cost of Bidding

The Bidder shall bear all costs associated with the preparation and submission of his Bid, and the JREDA will, in no case, be responsible or liable for those costs

7. Site Visit

Site will be allocated to successful bidders as per the demand received, which may be across the State. The bidder shall have no claim regarding economy of scale, choice of district/region in the State. However, the bidder may visit the site after the allocation of the site.

BIDDING DOCUMENTS:

8. Content of Bidding Documents

The set of bidding documents comprises the documents listed below:-

- i. Instructions to Bidders
- ii. Qualification Information
- iii. Conditions of Contract
- iv. Specifications
- v. Bill of Quantities
- vi. Form of Bid
- vii. Form of Bank Guarantee.
- viii. Annexures

The bidder is expected to examine carefully all instructions, conditions of contract, contract data, forms, terms and specifications, bill of quantities, forms in the Bid Document. Failure to comply with the requirements of Bid Documents shall be at the bidder's own risk. Pursuant thereof, bids, which are not substantially responsive to the requirements of the Bid Documents, shall be rejected.

9. Clarification on Bid Documents and Pre-bid Meeting:

- 9.1 A prospective Bidder requiring any clarification of the bid documents may inform to JREDA in writing at the JREDA's address indicated in the Notice Inviting Tenders. JREDA's response will be uploaded in the form of corrigendum on our website www.jreda.com.
- 9.2 Pre-bid meeting will be held on **08.05.2026 (Friday) at 2.00 P.M.** in the Conference Hall of JREDA. The bidder or his authorized representative may attend the meeting.
- 9.3 The purpose of such a meeting will be to clarify issues on any matter that is raised at that stage.
- 9.4 Pre-BID queries are accepted by e-mail at info@jreda.com within two working days after the Pre-BID meeting.
- 9.5 Any modifications of the bid document listed in Clause 8 of ITB, which may become necessary as a result of the pre-bid meeting shall be made by the JREDA exclusively through the issue of an Addendum/Corrigendum under Clause 10 of ITB on the website.

10. Amendment of Bidding Documents

- 10.1 Before the deadline for submission of bids, the JREDA may modify the bidding documents by issuing an addendum/corrigendum.
- 10.2 To give prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the JREDA shall extend, if necessary, the deadline for submission of bids, in accordance with Clause 19.2 of ITB.

Preparation of Bids

11. Language of Bid

All documents relating to the Bid shall be in the language specified in the Notice Inviting Bid.

12. Documents Comprising the Bid

A. Technical Bid – (Fee/Pre-Qualification/Technical)

12. A.1 EMD & Tender Fee

Submission of Bid Fee through Online Via SBI Payment Gateway of Jharkhand Tenders.

12. A.2. Technical Details & Declaration

- a) Proposed work Programmed (work method, schedule, and financial flow), description, and charts as necessary (Duly to be signed digitally) to comply with the requirement of the Bidding Document.
- b) A scanned copy of an Affidavit by the Bidder that he/she has accepted the S.B.D.
- c) Scanned copies of the following documents are to be uploaded in .pdf format Only on the web-

site <http://Jharkhandtenders.gov.in>. As per Section-1.

B – Financial Bid – (Finance Cover)

- a) Duly Quoted & digitally signed Bill of Quantity (BOQ) in the file supplied by JREDA in .xls format.
- b) Declaration by Bidder in the format Section – 6 form of Bid in .pdf format.

NOTE: - a) All the documents should be digitally signed.

C- The following documents, which are not submitted with the bid, will be **deemed to be part of the bid**.

- i. Section Particulars
- ii. Notice inviting Tender
- iii. Instruction to the bidders
- iv. Conditions of Contract
- v. Contract Data
- vi. Specifications

13. Bid Prices

- 13.1** The Contract shall be for the whole Works, as described in Clause 1.1 of ITB.
- 13.2** The Bidder shall adopt the Item (Unit) Rate Method as specified in the Notice Inviting Bid only the same option is allowed to all the Bidders.
- 13.3** All duties, taxes, royalties, and other levies payable by the Contractor under the Contract, or for any other cause, shall be included in the rates, prices, and total Bid price submitted by the Bidder.
- 13.4** The unit rates and prices quoted by the Bidder shall be fixed for the duration of the Contract and shall not be subject to adjustment.
- 13.5** Tenderers should quote their unit rates considering the wide variation of site conditions, and variation in price of different components during the year 2025-26 and keeping the quantum and quality of work in mind. If JREDA anticipates that the rate is abnormally low or high, the tender may be cancelled.

14. Currencies of Bid and Payment

The unit rates and the prices shall be quoted by the bidder entirely in Indian Rupees (INR).

15. Bid Validity

- 15.1** Bids shall remain valid for a period of 180 (One hundred Eighty) days after the deadline date for bid submission specified in Clause 19.2 of ITB. A bid valid for a shorter period shall be rejected by the JREDA as non-responsive.
- 15.2** In exceptional circumstances, before the expiry of the original time limit, the JREDA may re-

quest the bidders for an extension of the period of validity for a specified additional period. The request and the bidder's responses shall be made in writing or by email. A bidder may refuse the request without forfeiting his Earnest Money. A bidder agreeing to the request will not be required or permitted to modify his bid but will be needed to extend the validity of his earnest money for a period of the extension, and in compliance with Clause 16 of ITB in all respects.

16. Earnest Money

- 16.1** The bidders have to submit their bids online in electronic format with digital Signature along with Receipt of Tender Fee and EMD submission through Online Via SBI Payment gateway of Jharkhand Tender. The bids without digital signature will not be accepted. No proposal will be accepted in physical form. Otherwise, the offer will not be considered and no further communication in the matter will be entertained. Please note that Bid is not to be submitted in physical form.
- 16.2** Technical Bid (techno-commercial Bid): It is mandatory for all the bidders to submit their Technical Bid (Techno-commercial Bid) Scan copy of documents & Transition receipt of Tender Fee & EMD through online (e-tendering) in scheduled time. Technical Bid in hard copy (physical form) shall not be considered. Tender Fee and EMD shall be submitted through Online Via SBI Payment gateway of Jharkhand Tenders.
- 16.3** All the required information for bid must be filled and submitted online. If the bid is not found to be uploaded online on the website (<http://Jharkhandtenders.gov.in>), bid shall be rejected even though the bidder/s have submitted Bid fee & EMD. No hard copy is required to be submitted in the office of JREDA.
- 16.4** The payment of Tender Document Fee and EMD can be made through Online Via SBI Payment Gateway of Jharkhand Tenders. Bidder shall deposit the EMD & tender fee in online mode as per rules of e-tendering portal. A Standard Operating Procedure for online collection of Tender Fee and Earnest Money Deposit by Government of Jharkhand can be downloaded from Jharkhandtenders.gov.in as a part of this tender document.
- 16.5** The Bidders / Contractors shall observe the highest standards of ethics during the submission of Tender, procurement, and execution of the Contract. In case of evidence of cartel formation by the Bidder(s) EMD is liable to be forfeited.
- 16.6** Bidder should be Submitted Original scan copy of online payments towards Tender fee.
- 16.7** Bidder should be Submitted Original scan copy of online payments towards EMD.

17. Alternative Proposals by Bidders

- 17.1** Bidders shall online submit offers that comply with the requirements of the bidding documents, including the Bill of Quantities and the basic technical design as indicated in the drawings and specifications.

17.2 Alternative proposals will be rejected as non-responsive.

D. Submission of Bids

18. Marking of Online Bids

18.1 The Bidder shall place the two separate files (File I) marked “Technical Bid” and “Financial Bid” (File – II). The file will have markings as follows:

Technical Bid: To be opened Online on (date and time of Technical Bid opening as per clause 20 of ITB.)

Financial Bid: The contents of the Financial Bids shall be as specified in clause 12 of ITB. All documents are to be signed digitally by the bidder.

19. Deadline for Submission of Bids

19.1 The bids must be submitted through e-tender mode not later than the date and time specified in the Bid Information Sheet in Section - I, Invitation for Bids (IFB).

19.2 JREDA may, in exceptional circumstances and at its discretion, extend the deadline for submission of Bids. In which case all rights and obligations of JREDA and the Bidders, previously subject to the original deadline will thereafter be subject to the deadline as extended. Notice for extension of bid submission date will be uploaded on e-proc website www.jharkhandtenders.com.

E. Bid Opening and Evaluation

20. Bid Opening

It is mandatory for all bidders to submit their PRICE-BID only through online (e-tendering). Price bid submitted in physical form will not be considered for its opening and only online submitted price bid will be considered for evaluation. Bidders to note that Price Bid of those bidders shall be opened (Online/e-tendering) who is found technically qualified and is found reasonably responsive to JREDA’s tender terms and conditions and Scope of Works.

20.1 In the event of the specified date for the Opening of bids being declared a holiday for JREDA or Due to any other Unavoidable reason, the Bids will be opened at the appointed time and location on the another working day.

20.2 The JREDA will upload the bidders List Online, whose technical bids are found responsive. In the event of the specified date being declared a holiday for the JREDA or any other unavoidable reason, the Online bids will be opened at the appointed time and location on the another working day through they ortheir representative, may attend the meeting of opening of financial bids.

- 20.3** At the time of the opening of the 'Financial Bid', the names of the bidders whose bids were found responsive in accordance with clause of ITB will be announced. The financial bids of only these bidders will be considered to be opened. The responsive bidders' names, the Bid prices, the total amount of each bid, and such other details as the JREDA may consider appropriate will be announced by the JREDA at the time of bid opening. Any Bid price that is not read out and recorded, will not be considered into account in Bid Evaluation.
- 20.4** The financial bids of the General bidders and Experienced MSME bidders will be opened.
- 20.5** The JREDA shall prepare the minutes of the opening of the Financial Bids.
- 20.6** Price part will not be open for MSEs having no work Experience in similar works as defined in NIB.

21. Process to be Confidential

- 21.1** Information relating to the examination, clarification, evaluation, and comparison of bids and recommendations for the award of a contract shall not be disclosed to bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any attempt by a Bidder to influence the JREDA's process of bidding or award decisions may result in the rejection of his Bid.

22. Clarification of Bids and Contacting the JREDA

- 22.1** No Bidder shall contact the JREDA on any matter relating to its bid from the time of the bid opening to the time till the contract is awarded.
- 22.2** Any attempt by the bidder to influence the JREDA's bid evaluation, by any means, bid evaluation, bid comparison contract award decision may result in the rejection of his bid.

23. Examination of Bids and Determination of Responsiveness

- 23.1** During the detailed evaluation of "Technical Bids", the JREDA will determine whether each Bid
- (a) meets the eligibility criteria defined in Clauses 3 and 4;
 - (b) has been properly signed;
 - (c) is accompanied by the required securities; and is substantially responsive to the requirements of the bidding documents. During the detailed evaluation of the "Financial Bids", the responsiveness of the bids will be further determined with respect to the remaining bid conditions, i.e., priced bill of quantities, technical specifications, and drawings.
- 23.2** A substantially responsive "Financial Bid" is one, which conforms to all the terms, conditions, and specifications of the bidding documents, without material deviation or reservation. A material deviation or reservation is one
- (a) which affects in any substantial way the scope, quality, or performance of the Works;
 - (b) which limits in any substantial way, inconsistent with the bidding documents, the JREDA's rights or the Bidder's obligations under the Contract; or

(c) whose rectification would affect unfairly the competitive position of other bidders presenting substantially responsive bids.

23.3 If a "Financial Bid" is not substantially responsive, it will be rejected by the JREDA, and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation or reservation.

24. Corrections of Errors

24.1 Bids determined to be substantially responsive, will be checked by the JREDA for any arithmetic errors. Errors will be corrected by the JREDA as follows:

- a)** Where there is a discrepancy between the rates in figures and words, the rate in words will govern; and
- b)** Where there is a discrepancy between the unit rate and the line-item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern.

24.2 The amount stated in the Bid will be adjusted by the JREDA following the above procedure for the correction of errors and shall be considered binding upon the Bidder. If the Bidder does not accept the corrected amount, the Bid will be rejected, and the Earnest money shall be forfeited following as Per Clause of ITB

25. Evaluation and Comparison of Bids

25.1 The JREDA will evaluate and compare only the bids determined to be substantially responsive under Clause 23 of ITB.

25.2 In evaluating the bids, the JREDA will determine for each Bid the evaluated Bid price by adjusting the Bid price by correcting, if any, for errors according to Clause 24 of ITB.

25.3 If the Bid of the successful Bidder is seriously unbalanced concerning the Engineer's estimate of the cost of work to be performed under the contract, the JREDA may require the Bidder to produce a detailed price analysis for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analysis, the JREDA may require that the amount of the performance security outlined in Clause 30 of ITB be increased at the expense of the successful Bidder to a level sufficient to protect the JREDA against financial loss in the event of default of the successful Bidder under the Contract. The amount of the increased performance security shall be decided at the sole discretion of the Employer, which shall be final, binding, and conclusive on the bidder.

25.4 After its evaluation, the JREDA may require that the amount of the performance security outlined in Clause 29 be increased at the expense of the successful Bidder to a level sufficient to protect the JREDA against financial loss in the event of default of the successful Bidder under the Contract. The amount of the increased performance security shall be decided at the sole discretion of

the JREDA, which shall be final, binding, and conclusive on the bidder.

Award of Contract

26. Award Criteria

26.1 Subject to Clause 26 of ITB, the JREDA will award the Contract to the Bidder whose Bid has been determined to be substantially responsive to the bidding documents and who has offered the lowest evaluated Bid price, provided that such Bidder has been determined to be (a) eligible under the provisions of Clause 3 of ITB, and (b) qualified under the provisions of Clause 4 of ITB; and as per clause 14 of Notice Inviting Bid (Section-3).

27. JREDA's Right to accept any Bid and to reject any or all Bids

27.1 Notwithstanding Clause 26 above, the JREDA reserves the right to accept or reject any bid to cancel the bidding process and reject all bids, at any time before the award of the Contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the JREDA's action without any reason.

28. Notification of Award and Signing of Agreement

28.1 The bidder whose Bid has been accepted will be notified of the award by the JREDA before the expiration of the Bid validity period by email and by registered letter. This letter (hereinafter and in Part I - General Conditions of Contract called the "Letter of Acceptance") will state the sum that the JREDA will pay to the Contractor in consideration of the execution and completion of the Works (hereinafter and in the Contract called the "Contract Price").

28.2 The notification of award will constitute the formation of the Contract, subject only to the furnishing of the performance security under the provisions of Clause.

28.3 The Agreement will incorporate the NIT document, Work order & subsequent amendments between JREDA and the successful Bidder. After the submission of the security deposit, the contract will be signed by the JREDA and the successful Bidder.

28.4 Upon the furnishing by the successful Bidder of the Performance Security, the JREDA will promptly notify the other Bidders that their Bids have been unsuccessful.

29. Security Deposit:

29.1 Successful **General bidder** shall submit a security deposit @**10%+ GST** of the allotted work order value in the form of DD/BG/FDR valid for one year on or before 15 days from issuing the work order. If the Bank Guarantee is not being submitted within the stipulated period from the date of issuing the work order, then JREDA shall cancel the work order.

29.2 **For MSME of Jharkhand:** Security Deposit should be @**1%+ GST** of Work Order value applicable in the form of DD/BG/FDR.

29.3 The Security Deposit shall be refunded/released to the bidder after the expiry of 60 days from the actual date of successful completion of work.

29.4 The Security Deposit will have to be maintained by the bidder with JREDA till the satisfactory completion of the work. If the work extends beyond the expiry date of the Bank Guarantee, bidders shall submit fresh or extend the period of validity of the Bank Guarantee as per the direction of JREDA, otherwise, JREDA may terminate the work order and blacklist the contractor.

30. Performance Guarantee:

30.1 Successful General bidder shall submit a performance guarantee @**5%+ GST** of the allotted work order value in the form of a Bank Guarantee/BG/FDR valid for five years on or before release of any payment.

30.2 Successful MSME bidders shall submit a Performance Guarantee @**0.5% +GST** of the allotted work order value in the form of bank guarantee/BG/FDR before release of payment.

30.3 The Performance Guarantee will have to be maintained by the bidder with JREDA till the completion of the warranty period.

30.4 The Security Deposit/Performance Guarantee shall be submitted in order of a bank guarantee in favor of 'Director, JREDA' payable at Ranchi from any Indian Nationalized bank/Scheduled bank.

Non-submission of Security Deposit/Performance Guarantee within the time frame, shall lead to forfeiting of EMD and cancellation of the work order.

30.5 If the Bidder/MSME unit fails to carry out the work allotted to him as per the provisions of the tender documents then such Bidder/MSME unit may be blacklisted for future awards of work.

31. Five Years Comprehensive Maintenance Contract (CMC):

a) The LED-BASED SHMLS system contract price includes the provision of a 5-year mandatory Comprehensive Maintenance Contract (CMC). To ensure the long-term sustainability of the system, the bidder must provide his representative's name, full address, mobile number, and photographs to JREDA with one hard copy and the names and contact details of all technicians must also be provided. Failure to do so shall invite penalty and action.

b) The Comprehensive Maintenance Contract shall include a servicing & replacement guarantee for parts and components (such as battery, electronics, Inverter, PV modules, and other hardware) of LED-based SHML for five years from the date of installation. **PV modules shall be warranted for 25 years and Bidder should submit the Undertaking of Warranty Certificate of PV Monocrystalline Module for a minimum of 25 Years.** Battery should be warranted for a minimum life of 5 years. The date of the CMC maintenance period shall begin on the date of the actual commissioning of LED-BASED SHML. **The contractor must carry out CMC regularly and submit the reports to JREDA quarterly. The contractor should also submit Online status of Healthiness of the system Report (Luminary, Solar Module & Battery) monthly as required format. The report should monthly autogenerate from the Online server from date of ITC & sent to JREDA.** Status of Failure to submit quarterly CMC including RMS reports timely shall

invite a penalty of @ **Rs. 1000/-** per week after the end of the one month to the end of the quarter. If the successful bidder is found to be not doing CMC work continuously for two quarters, then the bidder's performance guarantee will be forfeited, the work order shall be canceled and the bidder shall be blacklisted. **For carrying out effective and smooth maintenance of the Solar High Mast Lighting System, reasonable number of service person as well as spare parts must be deployed by the successful bidders after the commissioning of the systems.**

32. Preventive/Routine Maintenance:

This shall be done by the supplier/contractor at least once every three months and shall include activities such as cleaning and checking the health of the SPV system, cleaning Mono-crystalline Module surface, tightening all electrical connections, regular checks to identify any leakage of current, changing of tilt angle of Mono-crystalline Module mounting structure, cleaning & tightening of battery terminals and any other activity that may be required for proper functioning of the Solar High Mast Light. The maintenance record should be kept properly and submitted at the JREDA office time to time. CMC documents should be certified by the Beneficiary. The Comprehensive Maintenance Contract shall include a servicing & replacement guarantee for parts and components (such as battery, electronics, PV modules, and other hardware) of LED BASED SHML for five years from the date of installation. PV modules shall be warranted for 25 years. Battery should be warranted for a minimum life of 5 years.

The date of the CMC maintenance period shall begin on the date of actual commissioning of LED-BASED SHML. The contractor must carry out CMC regularly and submit the report to JREDA quarterly. After the successful commissioning of the system, the CMC report/Checklist/Maintenance schedule should be submitted to JREDA and approved by a JREDA representative.

Breakdown, Damage, or Failure of Module/ Luminaries/Battery/RMS System/Pole should be repaired within 7 days. For carrying out effective and smooth maintenance of the Solar High Mast Lighting System, a reasonable number of service centers must be established by the successful bidders before the commissioning of the systems. **Quarterly Device Connectivity & Data Availability of RMS systems should be ensured by Contactor.**

Failure to submit quarterly CMC reports/RMS Reports timely shall invite a penalty of @ **Rs. 1000/-** per week after the end of the one month of the ending of the quarter. If the successful bidder is found to be not doing CMC work continuously for two quarters, then the bidder's performance guarantee will be forfeited, the work order shall be canceled and the bidder will be blacklisted.

33. Breakdown / corrective Maintenance:

Whenever a complaint is lodged by the user, the bidder shall attend the same immediately. It is clari-

fied that effective CMC means the bidder should ensure smooth working of all the Solar High Mast Lighting System throughout the CMC period and therefore, if any complaint in this level of service is found by the JREDA officials and if the bidder do not attempt the rectification of any such defect Within seven days of communication of such complaint to the bidders, A penalty of @ **Rs. 100/-** per day per item will be imposed on bidder after 7 days from the day it was informed about the defect/rectification/RMS failure till the same is rectified for Solar High Mast Lightings.

Automatically Facility of Sending live Status of Faulty Status / Alarm of solar Luminary & Equipment /Breakdown status of any solar High mast to JREDA mail & Contact no. as per JREDA requirement.

Hand Over take Over: Qualify Agency should hand over the installed site to JREDA in working condition with after completion the of CMC after five Years from the date of commissioning.

34. Advances:

The JREDA will not provide any advance against the security of equipment as provided in Part I - GeneralConditions of Contract.

35. Corrupt or Fraudulent Practices:

The JREDA requires the bidders/Contractors to strictly observe the laws against fraud and corruption in force inIndia, namely, **Prevention of Corruption Act, 1988**

36. Timeline/ Completion Period:

The time of completion shall be adhered as per the timeline defined in the table below:

Sr. No.	Particular	Timeline (in Days)
1	Letter of award	X Day
2	Submission of Security Deposit and Signing of Agreement	Within X+15 Days
3	PDI Offer by the firm	X+90 Days
4	Supply, installation & Commissioning of SHML at Sites.	Within X+180

Section-5

General Terms & Conditions

Tender Reference No.: NIB: 05/JREDA/SHMLS/RC/26-27

Introduction:

The instructions/information contained in the bid documents are for guidance and compliance of the intending bidder. Bidders are advised to obtain clarification from JREDA, if any, prior to submission of their bid, failing which it will be deemed that the stipulation made in the bid documents have been read, understood and are acceptable to the bidder.

Bidder shall bear all costs associated with the preparation and submission of the bid, journeys undertaken by them and subsequent bidding process till the award of the order to successful bidder and the JREDA shall in no case, shall be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

1. Scope of work:

The Scope of work for LED based Solar High Mast Lighting System includes “**Rate Contract for Design, Supply, Installation, Testing & Commissioning including 5 years Comprehensive Maintenance Contract (CMC) of 60 W LED based solar High Mast Lightning systems (SHMLS) including Remote Monitoring System (RMS) & Global Positioning System (GPS) with Lithium Ferro Phosphate Battery on Turnkey basis across the state of Jharkhand**”

complete set in all respects along with one set of operational instruction cum maintenance manual (both English and Hindi) for each set and delivery on FOR destination/site (door delivery) basis across the State of Jharkhand as per the direction of JREDA.

Name of Consignee: The Consignee person will only be nominated by the District Administrative or JREDA officials.

2. Bid documents:

Tender documents shall comprise of all the documents mentioned in this Bid. In addition to these any other documents/amendments/revisions or instructions issued by JREDA from time to time to bidders till due date of opening of the offers, shall also be deemed to be integral part of the bid document.

3. Price:

The bidder shall quote the project cost of one unit as per schedule of items of work. The contract price rates shall be firm and binding and shall not be subject to any variation except for statutory variation of taxes and duties during the contractual completion period. *The price shall be excluding GST and inclusive of all Central/State/Local taxes & duties, packing, forwarding, transit insurance, loading & unloading, transportation & other charges and 5 years CMC etc. as on the opening date of tender.* The price shall also include designing, manufacturing, inspection, supply, transport, insurance, handling etc. All applicable charges for taking necessary clearance

such as commercial tax, road permit etc. wherever required are also deemed to be included in the contract price.

4. Inspection of the factory and Tests:

JREDA reserves the right to inspect the manufacturer's works/factory to ascertain the capability/availability of necessary equipment and infrastructure required for manufacture of the Items offered. JREDA shall have the access and right to inspect the work or any part thereof at any stage and to test the goods to confirm their conformity to the technical specifications. The successful bidder shall inform JREDA at least 15 days in advance of scheduled dispatch for technical sample audit.

5. Payment terms and conditions:

Project Cost will be divided into Supply, Installation, Commissioning as one part (**i.e., 80 % of the project cost**) and **CMC as second part (20 % of the project cost)**. In case agency fails to comply CMC as per work order i.e., fails to submit CMC report or fails to attend compliance then after two notice or two months whichever is earlier, 2nd part of work order will be transferred to any of the technically qualified agency under that NIB on quotation basis and the performance bank guarantee of the agency will be forfeited along with necessary action as per prevailing rules. Subject to any deduction which JREDA may be authorized to make under this contract, the contractor shall be entitled to payment as follows:

- 6.1 70%** of the 1st Part of Project cost shall be paid against supply and delivery of goods in full and in good condition as certified by Consignee and/or JREDA Officials after submission of following documents:
- i. Original Commercial invoice raised from the state of Jharkhand for the supply made in triplicate (1+2) along with E-way Bill.
 - ii. Duly Verified E-Way Bill from Manufacturer Unit to Warehouse Location/ Delivered Location of Solar Modules, Luminary, Battery & SHMLs Pole etc. as per E-Way Guideline.
 - iii. Duly Verified Copy of Duly raised Delivery Challan / Transportation Challan /lorry receipt/Dispatch clearance of Each & Every Component.
 - iv. Duly Verified Copy Transit Insurance of Solar Module, Battery, Luminary, Pole from Manufacturer Location to Delivered Location/Site.
 - v. Duly filled **Annexure-II** should be submitted duly signed by the Consignee/JREDA officials.
 - vi. Photographs with Geo-tag of all the equipment (materials) at destination with signature & seal of Consignee/JREDA Officials. This record should be kept in the office of Consignee for verification.
 - vii. Warranty Certificate issued by Manufacturer of Solar Module, Battery, SHMLs Pole & Luminary as Per NIB.

Note:- Successful bidders who are awarded the work, shall at the time of submission of bills for payments, be required to submit e-way bills for verification to authenticate the invoices raised. Additionally, they must provide complete details of GST Input Tax Credit (ITC) for validation purposes.

Further, as and when required bidders may be required to share access credentials, including passwords, with work Incharge/authorized representatives of JREDA for verification, along with relevant physical supporting documents. Processing of payments shall be strictly subject to satisfactory verification of all such records.

- 6.2** 30% of the 1st Part of the Project cost shall be paid against Installation, Testing & Commissioning after submission of the following documents:
- i. Copy of Original Commercial invoice raised at the time of supply in triplicate (1+2).
 - ii. Duly filled **Annexure-III** should be submitted duly signed by the Consignee/JREDA officials.
 - iii. Certificate for minimum of seven days of satisfactory performance with photographs of each installed LED based SHMLS with GPS coordinates.
 - iv. The bidder shall submit Comprehensive list of Location wise geo-tagged coordinates for all installed sites in KML (Keyhole Markup Language) format. The KML file shall be compatible with standard GIS platforms such as Google Earth.**
 - v. List of M2M 4G/5G SIM numbers along with the device ID With Location Wise shall be provided to JREDA and Invoice of Mobile SIM Recharge valid for 5 Years.
 - vi. Site wise Insurance of Each Installed Solar High Mast Light System in Original with Sign & Seal.
 - vii. Site wise Online RMS details of each Solar Installed High Mast Light with User Id and Password
- 6.3** 20% of the total Project Cost shall be payable towards CMC, subject to certification by the Consignee and/or JREDA officials.

The payment shall be released upon submission of the following documents:

- I. Copy of the original commercial invoice raised at the time of supply, submitted in triplicate (1 original + 2 copies).
- II. Submission of Quarterly CMC Reports along with **Geotag Photographs** for all Solar High Mast Lighting (SHML) systems maintained by the agency, as per **Annexure-IV**.
- III. Submission of Quarterly Device Connectivity and Data Availability Reports.
- IV. 4% of Project Cost i.e CMC payment shall be released only after successful completion of the yearly CMC period, duly certified by the concerned authority.

6. Dispatch Instructions:

All items/equipment's shall be subject to **Pre-Dispatch Inspection (PDI)** by JREDA or its authorized representatives at the manufacturing site before their dispatch. The sample size for PDI shall be in accordance with **IS 2500 / related standards of sampling plan**.

The manufacturing site must have sufficient testing facilities. The manufacturer will submit test report with regards conformity to technical specifications for the items to be dispatched to work site of JREDA. After acceptance of the test reports of equipment's, "**Dispatch Clearance**" will be issued by JREDA. Bidder should submit Undertaking after PDI as per **Annexure: 11**.

Randomly selected Sample/s from each lot offered for PDI, may be sent to MNRE approved or NABL accredited lab for verification of Specifications and Performance of the System. The cost of such tests shall be borne by bidder.

No consignment shall be dispatched without approval of test report received during PDI from JREDA. No PDI shall be done at any site other than the concerned manufacturing site. Successful bidders have to arrange necessary equipment's for testing the materials to be supplied during the pre-dispatch inspection by JREDA at their manufacturer's unit. Failure to fulfill the PDI conditions shall lead to cancellation of work order and forfeiture of security deposit.

The items which are being procured through this bid have to be distributed/installed on the basis of demand to be received by JREDA. Therefore, JREDA does not take responsibility that it will procure 100% quantity as has been indicated in the bid. Further, as JREDA will receive the demand, the supply order shall be placed to the successful bidder for execution in due time.

After finalization of the tender JREDA authority will take decision for issuing work order for the work under scope to the successful bidder; and thereafter on the basis of demands received in the JREDA office, request for supply/ installation will be communicated. Then within 2 months period the supplier will have to ensure pre dispatch inspection from JREDA and within next 30 days JREDA will issue Dispatch instruction. Accordingly, the work of supply & installation will be completed by the vendor within 180 days period from the date of issue of work Order. The bidders shall have no claim regarding economy of scale, choice of district/s or choice of region in the state, for the purpose of transportation of items/materials to the demand/work sites.

7. Liquidated Damages for Delay in Completion:

If the supplier fails 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 JREDA and/or to fulfill his obligations in time under the contract, he shall be liable to pay to JREDA @**0.5%** per week maximum up to @**10%** of work value delayed beyond contract period.

8. Risk & Cost:

If the contractor fails to complete the awarded work from the scheduled date of completion, then JREDA will be at liberty to cancel the said work order and will get the full or part of left-over work to be completed by way of engaging alternate contractor and completion of the said work shall be got completed at risk & cost of the failed contractor and failed contractor shall be liable to pay all the dues to JREDA.

9. Insurance:

- A. The eligible contractor shall arrange insurance coverage for the materials and Solar Mast System at his/ beneficiary's custody for the work under execution and successful commissioning and subsequent handover to the beneficiary. The eligible bidder shall take up insurance or such other measures for the manpower so as to cover the claim for damage arising under Workmen's Compensation Act and other applicable State/Central laws. JREDA shall not bear any responsibility on this account.
- B. Eligible contractor shall arrange for insurance coverage for complete Solar Mast System during CMC period i.e., for 05 year from the date of installation. Insurance should cover for damage and theft. In case of such incidence, contractor must replace the lost/damaged part within 15 days from the date of intimation.
- C. Insurance must cover third party liabilities including casualties and other operational activity.

10. Assignment/ Sub-letting:

The Manufacturer shall not assign or sublet in whole or part of the work, and its obligations to any third party to perform under the order/contract. However, the manufacturer can procure those materials from any other manufacturer, which are not manufactured by the firm.

In the event the manufacturer contravenes this condition, JREDA reserves the right to reject the equipment/work contract and procure the same from elsewhere at manufacturer's risk and cost. The Manufacturer shall be solely liable for any loss or damage which JREDA may sustain in consequence or arising out of such replacing of the contract work.

11. Completeness of Tender:

All fittings, assemblies, accessories, hardware items etc. & safety and protection devices as required shall be deemed to have been included in the tender, whether such items are specifically mentioned in the BoM/BOQ or not.

12. Compliance with Regulations:

The supplier/contractor shall comply with all applicable laws or ordinances, codes approved standards, rules and regulations and shall procure all necessary municipal and/or other statutory bodies and government permits & licenses etc. at his own cost. The contractor shall leave the purchaser, JREDA harmless as a result of any infractions thereof.

13. Agreement:

The successful qualified suppliers shall have to enter into an agreement in the office of the Director, JREDA, in prescribed format before commencement of supply.

14. Income Tax / GST:

Without prejudice to the obligations of the supplier under law, any income tax and GST which JREDA maybe required to deduct by law/statute, shall be deducted at source and shall be paid to income tax authorities on account of the supplier. JREDA shall provide the supplier a certificate for such deduction of tax.

15. Training Program, After Sales Service and Availability of Spare Parts:

16.1. The responsibility of organizing training program for LED-based SHML will rest on the successful bidder. The training program will be organized in consultation with JREDA/Consignee. The training program will focus on the operation and maintenance of LED-based SHML. Printed leaflet/literature should be made available in Hindi by the Supplier regarding the operation and maintenance of their LED-based SHMLs.

16.2. The Supplier shall depute authorized Service Engineer within 7 days from the date of the intimation of fault, and establish a sufficient inventory of spares in the State in consultation with JREDA to provide satisfactory and uninterrupted services during the warranty period.

16. Force Majeure conditions:

- i.) In the event of either party being rendered unable by force majeure to perform any obligation required to be performed by them under this agreement, relative obligation of the party affected by such force majeure shall be treated as suspended during which force majeure condition last.
- ii.) The term force majeure shall have herein mean riots (other than among the contractor's employee), civil commotion, war (whether declared or not), invasion, act of foreign enemies' hostilities, rebellion, insurrection, military coup to usurp power, act of god such as earthquake, lightening, floods, fires not caused by contractor's negligence and other cause which the contractor has no control and accepted as such by the Director, JREDA, whose decision shall be final and binding.
- iii.) If the work is suspended by force majeure conditions lasting for more than 45 days, the purchasers shall have the option of canceling this contract in whole or part thereof, at its discretion. The contractor shall not claim for compensation for force majeure conditions

The Bidder shall bear all expenses/cost to be incurred towards salary, allowances, perks, traveling allowances, advances, insurance, safety measures, PPE, security, transportation and all other misc. expenses etc. of their employees/ workmen during the tenure of installation & CMC. Also, the FIRM shall be solely responsible for making payment for Hospitalization, Compensation thereof in case of

any accident & injury.

SAFETY MEASURES

The contractor shall ensure strict compliance with all applicable safety standards, regulations, and best practices during the execution of the work. The following safety measures shall be adhered to:

General Safety Compliance

All work shall comply with relevant Indian standards such as Bureau of Indian Standards (BIS) and guidelines issued by Ministry of Labour and Employment.

Personal Protective Equipment (PPE)

Workers must use appropriate PPE such as helmets, safety shoes, gloves, reflective jackets, and safety harnesses.

PPE must be ISI-marked and regularly inspected.

Electrical Safety

The contractor shall ensure strict adherence to electrical safety standards during transportation, erection, wiring, and commissioning.

Pre-Installation Safety Checks

Site survey shall be conducted to identify nearby overhead lines, underground cables, and electrical hazards.

Work shall not be carried out near live electrical lines without proper shutdown or clearance.

Necessary permissions from the concerned electrical authority shall be obtained.

Safe Distance from Live Lines

Maintain minimum statutory clearance from overhead electrical lines during pole erection.

Use insulated tools and equipment when working near energized systems.

Earthing and Grounding

Each pole shall be properly earthed as per standard specifications.

Earth resistance shall be tested and maintained within permissible limits.

GI earth pipe/plate and proper earthing conductor shall be used.

Use of Qualified Personnel

Only licensed/qualified electricians shall carry out electrical connections.

Supervisors shall ensure compliance with safety procedures at all times.

17. Cancellation of Work Order:

JREDA will be at liberty to terminate/blacklist in part or full the awarded contract and / forfeit security deposit and/or performance guarantee without prejudicing its rights and affecting the obligations of the Contractor by giving 15 (Fifteen) days' notice in writing in the following events:

- (a) If the contractor/supplier is found defaulter for delayed supply, installation & commissioning or failure to deliver satisfactory performance or supply of substandard materials.
- (b) If the contractor/supplier fails to comply with the provision(s) of the contract including their responsibilities to fulfill the 5 years CMC as per the provisions mentioned.
- (c) If the Contractor/vendor is involved in any action of moral turpitude.
- (d) While taking decisions for blacklisting of the bidder, his past performance shall also be taken into account.

18. Jurisdiction of the Court:

All disputes would be settled within Ranchi jurisdiction of court of law only.

Section-6
Tender Reference No.: NIB: 05/JREDA/SHMLS/RC/26-27
Annexure-I
Technical Specification

A solar photovoltaic Mast System (HM) is an outdoor lighting unit used for illuminating an open area. The Solar Mast System consists of a solar photovoltaic (SPV) Module, Solar PV Mono-crystalline Module Manufacturers will be enlisted under, which comply with the BIS Standards and have a minimum Mono-crystalline Module efficiency $\geq 19\%$, LiFePo₄ storage battery, RMS Based LED Luminary with Controls & BMS. Electricity generated by the PV Mono-crystalline Module charges the battery during the day time which powers the luminary from dusk to dawn. The system lights at dusk and switches off at dawn automatically. The Solar Mast System should be an integrated system.

The SPV Mono-crystalline Module should be as per NIB. **Solar PV Mono-crystalline Module Manufacturers will be enlisted under, BIS Standards and have a minimum Mono-crystalline Module efficiency > 19%.** The battery bank should be of LiFePo₄ storage batteries as per MNRE with control electronics, BMS, inter-connecting wires/cables properly sealed.

The luminary is based on White Light Emitting Diode (W-LED), a solid-state device which emits light when electric current passes through it. All these three items should be mounted as an integrated compact unit. This compact unit should be mounted at a suitable angle to maximize illumination on the ground. The PV Mono-crystalline Module is placed at the top of the pole so that it receives solar radiation throughout the day, without any shadow falling on it. Electronic Efficiency of the system should be minimum 85% with duty cycle dusk to dawn with Autonomy of 2 days or Minimum 24 operating hours per permissible Discharge.

This integrated unit should be mounted on a suitable mounting structure in such a way that it can be lowered or elevated through a winch of suitable size. The winch system (including pulley, locking arrangement and wire rope of suitable size) is required for lowering & elevating the compact unit of modules, battery & luminaries, through a mounting structure around a pole including hardware.

Mono-crystalline Solar Module	Batteries Lithium Ferro Phosphate battery (LiFePo ₄ battery) (120 AH)	Luminary (60 W)	MMS/Pole Structure (9Mtr.)
<ul style="list-style-type: none"> • IEC 61215/ BIS 14286 • IEC 61730-1 • IEC 61730-2 	<ul style="list-style-type: none"> • IS 16046-Part 2 • IS 16047 Part 3 	<ul style="list-style-type: none"> • LM 80 • LM 79-08 	<ul style="list-style-type: none"> • IS 2062: E250 • BS:5135 • BSEN ISO 1461 /BSEN 10025 • IS 5986 • ENISO 1461:1999 And • IS 111759-1985

LIGHTING SYSTEM

A stand-alone Solar PV White- LED High Mast Light consist of white LED luminary of maximum 4*60Watt (LED + Driver) as per configuration along with Mono solar PV modules and battery of given capacity, nec-

SOLAR HIGH MAST

essary control electronics-inter connecting wires / cables, Mono-crystalline Module mounting structures etc. to operate the load for dusk to dawn. The broad performance specifications of a White Light Emitting Diode (W-LED) light source-based solar Luminaires lighting system are given below:

BROAD PERFORMANCE PARAMETERS

<p>PV Module</p>	<p>Only indigenous modules shall be used in the project. Reputed manufacture i.e Waaree Energies Ltd., Adani Solar, Vikram Solar, Tata Power Solar, Renew Sys or equivalents standard should be used . Mono SPV Mono-crystalline Module approved aggregate capacity as per NIB.</p> <p>Solar PV Mono-crystalline Module Manufacturers will be enlisted under, which comply with the BIS Standards and have a minimum Mono-crystalline Module efficiency > 19%</p> <table border="1" data-bbox="625 625 1442 961"> <tr> <td>Peak Power Watts-PMAX (Wp)*</td> <td>200</td> </tr> <tr> <td>Power Output Tolerance-PMAX (W)</td> <td>0/+5</td> </tr> <tr> <td>Maximum Power Voltage-VMPP (V)</td> <td>21.34</td> </tr> <tr> <td>Maximum Power Current-IMPP (A)</td> <td>9.37</td> </tr> <tr> <td>Open Circuit Voltage-VOC (V)</td> <td>24.91</td> </tr> <tr> <td>Short Circuit Current-ISC (A)</td> <td>9.88</td> </tr> <tr> <td>Module Efficiency ηm (%)</td> <td>≥19.00</td> </tr> </table>	Peak Power Watts-PMAX (Wp)*	200	Power Output Tolerance-PMAX (W)	0/+5	Maximum Power Voltage-VMPP (V)	21.34	Maximum Power Current-IMPP (A)	9.37	Open Circuit Voltage-VOC (V)	24.91	Short Circuit Current-ISC (A)	9.88	Module Efficiency ηm (%)	≥19.00						
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Module Efficiency ηm (%)	≥19.00																				
<p>Battery</p>	<p>Reputed Brand i.e Li Ferro Phosphate batteries of capacity as per NIB i.e. Exide, AMARARAJA, HBL, AMARARAJA, Luminous OR Equivalent Standard s, with BMS.</p> <table border="1" data-bbox="625 1081 1495 1654"> <tr> <td>Rated Capacity</td> <td>120Ah</td> </tr> <tr> <td>Nominal Voltage</td> <td>12.8V</td> </tr> <tr> <td>Max Charge Voltage</td> <td>14.6V</td> </tr> <tr> <td>Discharge Cut Off Voltage</td> <td>11.20V</td> </tr> <tr> <td>Minimum Capacity (Wh)</td> <td>1536</td> </tr> <tr> <td>Charging Current</td> <td>20A</td> </tr> <tr> <td>Max. Continuous Dis-charging Current</td> <td>20A</td> </tr> <tr> <td>Min Cycle Life</td> <td>>2000 cycles</td> </tr> <tr> <td>Discharge Rate</td> <td>≤3%</td> </tr> <tr> <td>Operating Temperature</td> <td>Charging: 0~45°C/Discharging: -20~60°C</td> </tr> </table>	Rated Capacity	120Ah	Nominal Voltage	12.8V	Max Charge Voltage	14.6V	Discharge Cut Off Voltage	11.20V	Minimum Capacity (Wh)	1536	Charging Current	20A	Max. Continuous Dis-charging Current	20A	Min Cycle Life	>2000 cycles	Discharge Rate	≤3%	Operating Temperature	Charging: 0~45°C/Discharging: -20~60°C
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Light Source-Luminaries

- Using LEDs which emits ultraviolet light will not be Permitted.
 - Only Nichia/ Osram/ Philips Lumileds/ CREE/ Seoul/ Ever lite make LEDs shall be used for light.
 - White Light Emitting Diode 60 x 04 nos.Total LED Wattage (Luminary Wattage) of each LED should be maximum operated confirming to IP66 or above.
 - The Output power of MPPT Driver or Input Power of LED Strip Should be Minimum 60 W.
 - **The design of the luminaire shall consider MPPT efficiency in such a manner that the output power from the MPPT driver, serving as the input to the LEDs, shall not be less than 60 W depending on the system rating.**
 - The LED should be SMD LED Chip of Nichia/ CREE/ Osram/ Philips/ LG /Samsung /Refond/ Everlight Seoul/ Bridgelux or equivalent reputed manufacturer.
 - The LED efficacy should be minimum 160 lm/W (as per LM 80) CCT 5500 - 6500 K, CRI Minimum 70 & LED wattage minimum 01 W.
 - The Luminous flux should be minimum 9600@60W Luminary Must be LM-79 certified from MNRE/NABL Lab. The color temperature of White LED used in the system should be in the range of 5500K-6500K. LEDs should not emit ultraviolet light. (Strictly as per IS 16101, IS 16102, IS 16103 and IS 16107). Type tests complied satisfactorily at independent MNRE Lab/NABL Laboratory.
 - Luminary Should be provision of Remote Monitoring system including Controlling in Day & Night Time, Dusk to down.
- GPS:**
- Should be capable of showing live location of luminary/mast-pole. Can work in any GSM combination for the network. Can be easily incorporated in existing lights as well. Should have wide working voltage range to be operative even in low battery conditions.
 - GPS should automatically sync with RMS portal & Google Map to show the details like longitude, latitude, google map location, district and state where it is present with Proper Accuracy range of maximum 5 Mtr.

Power	60
MPPT Driver Efficiency	> 90%
MPPT Output Power	60 W
Input Power of LED	60 W
CCT	5500-6500
CRI (Min.)	70
Min LED Wattage(W)	1
Luminous Flux Lum/W(Min)	150
Colour Temperature (K)	5500-6500
LED Life	5000Hrs
RMS	Existing
GPS	Existing

Light Out put

White color (color temperature 5500-6500 K). Lumen efficacy of LED- min 160 lumens/Watt. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye. Higher light output will be preferred.

Pole (≥80 Microns)

9 Mtr. Long Single /Double section Double Ring including Cross Brassing /Structural Support Suitable Bed Type/Arm Type Only South Facing Mounting Support 20 sided polygonal Raising lowering mast shaft in Single section Suitable for basic wind speed 50 m/sec (180 Km/ Hr.) complete with only 4 Wire head frame, Luminaries carriage suitable to install 4 nos. Luminaries, Solar Panels & battery on the top of the mast. There should be provision to install the type tested Winch inside the mast for raising & lowering of complete solar lighting system Only Reputed Manufacture of SHMLs Pole i.e Skipper Limited and Utkarsh India B.P Projects or Equivalent's Standard.

The mast must be hot dip galvanized 20-sided polygonal structure having Specification as per above specifications. The high mast should have a designed life of 25 years. Only Bajaj/ Surya/Philips or equivalent reputed manufacturer shall be used High mast pole should have a proper Docking mechanism.

SHMLS pole head Frame & MMS Mounting should be 4 Wire System.

The Solar panels should face south to receive the highest amount of sunlight throughout the day.

Minimum 4 No. of SS Type D-Clamp should be used for each Joint for fixing the Rope in MMS.

1	DC Power(W)	60
2	Pole Height (Mtr.)	9 Mtr .
3	Thickness of Pole(Minimum)	3.00 mm
4	Galvanized (Minimum 80 Micron)	80
5	Inner Bottom Dia-mm (Minimum)	410
6	Inner Top Dia -mm (Minimum)	150
7	Weight (Kg)	As per Standard
8	Dia Base plate (mm)	510.00

9	Minimum Thickness of base plate (mm)	20.00
10	Minimum RCC Foundation Diameter(mm)	900*900*2000
11	Structural Support /Cross Bracing with Double Ring	Mandatory
12	No. of Wired Head Frame	4
13	Solar Module Inclined Angle (15-20 Deg)	**South Direction
14	Wire Rope Thickness (Minimum)	As per Load Calculation
15	Gear Box Capacity (kg)	As per Load Calculation

Stainless Steel Wire Rope	Wire rope of Grade AISI 316 grade, 7/19 construction, with two ropes continues Minimum @8 mm diameter and Minimum braking load capacity 2450 kg. The breaking load test report obtained from govt. laboratory of the wire rope should justify the desired the Breaking load capacity. **Only SS Wire rope acceptable, GI Wire Rope not Acceptable.
Complete Raising Lowering mast	The lighting design report of the solar raising lowering mast, Data sheet of mast, Type test report of winch & load test report of AISI 316 grade wire rope to be provided by the company for technical acceptance of the complete system .
Number of foundation bolts: PCD of foundation bolts (mm): Type: Diameter: Length of foundation bolts:	Min 6 nos. Min 500 mm TS 600 Min 24 mm dia. Min. 900 mm long
Decorative Pedestal	As per above Specification
Electronics Efficiency	Minimum 90%
Autonomy	3 days or Minimum 24 operating hours per permissible Discharge
Average duty cycle	Online Dusk to dawn Control from Web Server as per Requirement by JREDA.
Trailing Cable	Interconnection cable Copper Conductor, 1 Core, 2.5 sq. mm/ 4 sq mm Insulation – ERP insulated PCP sheathed.
Size of opening and door at base (MM)	Size of opening and door at base (MM)
Lighting Protection	G I Single Spike of length 1200 mm.
Warranty	The complete solar mast lights & Battery should be warranted for a period of 5 years & Solar PV Mono-crystalline should be warranted for a period of 25 years Module from the date of installation.

MINIMUM TECHNICAL REQUIREMENTS / STANDARDS

1. DUTY CYCLE

The Solar PV White- LED High Mast Light system should be designed to operate for Online from Portal dusk to dawn Control as per requirement of JREDA.

2. SPV MODULES

- i. Only Solar PV Mono-crystalline Module Manufacturers will be enlisted under BIS Standards and have a minimum **Mono PERC Half-Cut Solar Module efficiency > 19%, shall be used in the Solar Photovoltaic module.**
- ii. Crystalline high power/efficiency cell shall be used in the Solar Photovoltaic module. The Solar Mono-crystalline Module efficiency should not be less than 19%.
- iii. PV Mono-crystalline Module must be warranted for output wattage, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.
- iv. The terminal box on the Mono-crystalline Module shall be IP65 and designed for long life outdoor operation in harsh environment should have a provision for opening for replacing the cable, if required.
- v. The offered Mono-crystalline Module shall be in accordance with the requirements of MNRE.
- vi. Latest edition of IEC 61215 edition II / IS 14286 & BIS for Crystalline and shall be certified by MNRE authorized test center. The bidder shall submit appropriate certificates.
- vii. PV modules must quality to IEC 61730 Part 1- requirements for construction & Part 2 – requirements for testing, for safety qualification.
- viii. Protective devices against surges at the PV Mono-crystalline Module shall be provided. Low voltage drop bypass diodes shall be provided and if required, blocking diode(s) may also be provided.
- ix. Identification and traceability Each PV Mono-crystalline Module must use a RF identification tag (RFID), which must contain the following information:
 - a) Name of the Manufacturer of PV Module
 - b) Name of the Manufacturer of Solar cells
 - c) Month and year of the manufacture (separately for solar cells and module)
 - d) Country of origin (separately for solar cells and module)
 - e) I-V curve for the module
 - f) Peak Wattage, I_m , V_m and FF for the module.
 - g) Unique Serial No and Model No of the module
 - h) Date and year of obtaining IEC PV Mono-crystalline Module qualification certificate.
 - i) Name of the test lab issuing IEC certificate.
 - j) Other relevant information on traceability of solar cells and Mono-crystalline Module as per ISO 9000 series.
 - k) The RFID should be inside the Mono-crystalline Module laminate.

3. BATTERY

- i. Capacity of each battery shall not be less than 12.8V/25.6, 120 Ah at C10 rate.
- ii. DOD shall be 90% i.e., at least 90% of the rated capacity of the battery should be between fully charged & load cut off conditions.
- iii. Battery terminal shall be provided with covers.
- iv. Suitable carrying handle shall be provided.
- v. Bidder shall mention the design cycle life of batteries at 75%, 50% and 25% depth of discharge at ambient temperature up to 45-degree C.
- vi. The batteries shall be designed for operating in ambient temperature of site up to 55-degree C.
- vii. The self-discharge of batteries shall be less than 2 % per month of rated capacity at 27-degree C.
- viii. Battery Wire should be as per standard & for reducing the joint of terminal battery cable should minimum 500 mm.**
- ix. GI Battery Box should be provided for Cover the Battery.**

4. Light Source:

- i. The light source will be of white LED type The color temperature of white LEDs used in the system should be in the range of 5500-degree K – 6500-degree K. Use of LEDs which emits ultraviolet light will not be permitted.
- ii. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye. Higher light output will be preferred. The light output from the white LED light source should be almost constant.
- iii. The lamps should be housed in a Only Flood light fixture suitable for outdoor use and shall comply with IP65.
- iv. The LED housing should be made of pressure die cast aluminium having sufficient area for heat dissipation and high-quality poly carbonate Lenses fitted with pressurized die cast aluminium frame with SS screws.
- v. The temperature of heat sink should not increase more than 30 degreeC above ambient temperature even after 48 hrs of continuous operation. This condition should be complied for the dusk to dawn operation of the lamps while battery operating at any voltage between the loads disconnect and charge regulation set point.
- vi. High power LED of minimum 1 watt each capacity capable to withstand maximum 1 amp driving current having lens angle greater than 120 degrees shall be used. The LED of make Nichia/Osram/Philips Lumileds/CREE/Seoul/Everlite having LM 80 test report shall only be used. Bidder shall have to submit LM79 test certificate of along with the bid.
- vii. The LED efficacy should be more than 160 lumen / watt.
- viii. All LED must incorporate fail short mechanism in all LEDs.
- ix. The LEDs used in the luminary should have life time more than 50,000 hrs.
- x. The lumen depreciation of LED shall not be more than 30% even after 50,000 burning hours.
- xi. Power consumption of each LED Luminary / Lighting unit shall not be more than 8 W (including LED Driver power loss).

xii. Luminary cables should be as per standard & for reducing the joint of terminal battery cable should minimum 500 mm.

i. **Other Parameters :**

- LED DC current regulation – better than 3 %
- Input – 12 V/12.5 DC
- Driver Type- DC-DC (as per IEC 62384)
- CRI - 70 % Typical
- Lighting quality- Free from glare and flickering and UV
- Ambient temp– up to 50 deg
- DC to DC convertor efficiency > =90 %

ii. The connecting wires used inside the luminaries, shall be low smoke halogen free, fire-retardant e-beam cable and fuse protection shall be provided at input side.

iii. Auto resettable reverse polarity protection shall be provided.

iv. LED lighting unit shall comply with LM -79-08 and LM -80-08 Standards and copy of test certificate (LM 80-08) should be submitted.

v. The make, model number, country of origin and technical characteristics of white LEDs used in the lighting system must be furnished.

vi. The luminaries must have light distribution polar curve as per LM 79 test specifications.

5. Electronics

MPPT charge controller to maximize energy drawn from the Solar PV array. The MPPT charger shall be microcontroller based. The MPPT should have four stage charging facilities i.e Bulk, Absorption, Float and Equalization. The PV charging efficiency shall not be less than 90% and shall be suitably designed to meet array capacity. The charge controller shall conform to IEC 62093, IEC 60068 as per specifications

i. Protection against polarity reversal of PV array and battery, Over Current, Short Circuit, Deep Discharge, Input Surge Voltage, Blocking diode protection against battery night time leakage through PV Module

ii. The system should have protection against battery overcharge and deep discharge conditions. The numerical values of the cut off limits of lower voltage should not be less than 11.20 Volt and over voltage cutoff should be 14.7 V.

iii. Full protection against open circuit, accidental short circuit and reverse polarity should be provided.

iv. Charge controller shall have Manual Online dusk-dawn Control based on SPV Monocrystalline Module as sensor for switching on/off the high mast light without manual intervention. The sensor must not get triggered by impulse lighting like lightning flashes and fire-crackers.

v. The self-consumption of the charge controller shall not be more than 1mA at rated voltage and rated current.

vi. Adequate protection shall also be incorporated under no-load conditions (i.e., when the system is ON & the load (LED Lamp is removed).

vii. The system should be provided with 3 LED indicators: a green light to indicate charging in progress and a red LED to indicate deep discharge condition of the battery and Blue LED to indicate the CGM Connectivity. The green LED should glow only when the battery is being charged.

viii. All capacitors shall be rated for max. temp of 105° C.

ix. Resistances shall preferably be made of metal film of adequate rating.

x. Device shall have adequate thermal margin should be at least 25 degrees below the allowable junction temperature while operating at an ambient temperature of 55 degree C and full load.

xi. Fibre glass epoxy of grade FR 4 or superior shall be used for PCB boards.

SOLAR CHARGE CONTROLLER UNIT:

Charge Controller Type	Maximum Power Point Tracking (MPPT) as per MNRE
Charging Current Rating at 12V	20A-30 A
Load Current Rating at 12V	15A-20 A
Solar Power	Only indigenous modules shall be used in the project. SPV Mono-crystalline Module aggregate capacity 200 Wp ,250 Wp & 1000 x 4 Nos.) at 16.4/25.6 \pm 0.2 Volt under STC.
Idle Current (Self Consumption)	<15mA
Efficiency	>90%
Temperature Compensation	3mV/ °C
Indications	The system should be provided with 3 LED indicators: a green light to indicate charging in progress and a red LED to indicate deep discharge condition of the battery and Blue LED to indicate the Connectivity of SHMLs. The green LED should glow only when the battery is being charged.
Battery Voltage Settings	Boost Charging -14.70V \pm 0.20V Float Charging - 14.00 V \pm 0.20V Battery Low Load Disconnect - - 11.10 V \pm 0.20V Load Reconnect - 12.60V \pm 0.20 V
Protections	<ul style="list-style-type: none"> • Transient / Surge • Over Charging / Deep Discharge • Overload - Auto shutdown and restart • Solar and Battery Reverse Protection • Reverse Current from Battery at Night

REMOTE MONITORING SYSTEMS:

- * **The load voltage and VOC conditions of the PV modules are not applicable for the system having MPPT based charge controller. Remote monitoring facility will be integrated with MPPT charge controller, and it would record system parameters at fixed time interval of 10 minutes for system health analysis. Recorded data should be download in PDF, XLS, JPEG, PNG and SVG Format. Recorded data should be available online for 90 days of limited time.**

Requirements of RMS and integration with State Solar Energy Data Management Platform

1. State Nodal Agency/Implementing Agency will have a common State Level Solar Energy Data Management platform (**SEDM**) to ensure third party performance monitoring as per Communication Architecture Guidelines.
 2. SEDM should have following minimum features or modules:
 - a. Solar High-mast System Performance: Energy Generation
 - b. Flood Type Performance: Running Hours, Full Brightness Hours, Half Brightness Hours
 - c. Remote Monitoring System Performance: %Device Connectivity, %Data Availability etc.
 - d. Events and Notifications: Faults related to Solar generation, Battery, Luminary
 - e. Asset Management: Ratings, Serial Number, Make, Model Number of Luminary, Panel and Controller etc.
 - f. Complaint and Ticket Management
 - g. Field Mobile Application: Generation, Running Hours, Complaint logging
- RMS Monitoring should be Considered below parameter.
- i. Status of Luminaries.
 - ii. Solar Mono-crystalline Module Voltage, Current & Power
 - iii. Battery Charging Current & Discharging Current, SOC, DOD
 - iv. Luminary Load Current
 - v. Quarterly/Yearly Device Connectivity & Data Availability in Percentage.
 - vi. For each high-mast system GPS should be capable of showing the current and updated status of network service availability on Web Portal.
 - vii. Having Provision of Attachment of Geo-Tag Photographs on Server .
 - viii. Download the Status of
3. Remote Monitoring System (RMS) provided by all bidder's should connect to State Level Solar Energy Data Management platform.
 - a. Each individual LED Light will be controllable through a dashboard interface.
 - b. JREDA will have the ability to Control the luminary on/off During Day/Night time both Time as per requirement by JREDA within 2 min delay From Online Server Dash Board.
 - c. Minimum Time Delay for Controlling ON /OFF & Demining Profile of Luminary Should be Maximum 2 Min.
 - d. All the Control & Dimming, ON/OFF Profile Operate from RMS Portal Server From Single Command.
 - e. Dash Board for Monitoring the SHMLs Should be Design as per Requirement of JREDA.
 - f. Submission of Online Generation of Monthly & Quarterly Maintenance report of SHMLs to JREDA.
 - g. Data uploaded by the RMS portal on the server within interval of 15 min on server.

a. Communication Connectivity:

- i. **Solar SHMLS Controller Connectivity:** Communication between Remote monitoring System and Controller should be on RS485 MODBUS RTU protocol / UART to ensure interoperability irrespective of make and manufacturer
- ii. **Remote Connectivity:** Communication between Remote monitoring system and SEDM should be using GSM/GPRS/2G/3G/4G cellular connectivity
- iii. **Local Connectivity:** Ethernet/Bluetooth/Wi-Fi connectivity to configure parameters, notifications, communication interval, set points etc. or to retrieve locally stored data.
- iv. The M2M SIM card used with the light/device should be pre-recharged for 5 years to avoid any discontinuation of data upload to the server. In turn, a list of M2M SIM numbers alongside the device ID shall be provided to JREDA. SIM number and carrier along with IMEI number of the device should also be seen on the portal along with device age in a tenure of 5 years. Submission of **Remote Monitoring System (RMS) data** for all installed Solar High Mast Lighting Systems. The RMS shall enable real-time monitoring and performance tracking of the installed systems

b. Communication Modes:

- i. Push Data on Event/Notification
 1. Luminary Status Change: On/Off
 2. Fault: Solar Module, Battery, Luminary and Luminary
 3. Vendor's RMS should send exception messages to central software (SEDM) on events.
- ii. Push Data Periodically: important parameters (as mentioned in tender) should be pushed to state server on configurable interval
 1. Instantaneous Parameters: Voltage, Current, Power, Brightness Level, Battery Charge Level
 2. Push Data Periodically: important parameters should be pushed to central server on configurable interval in multiples of 1 minute or more or as desired by JREDA.
- iii. Pull On demand: If required, central server can fetch data from device on user demand or request
 1. Update Status of latest values and parameters at control room on request instead of waiting for 2 Hours.
 2. If required, central server can fetch data from device on user demand or request.
- iv. Command/Push On Demand:
 1. Activate or deactivate Astronomical Mode
 2. Send Command to switch on or off Streetlight in case of environmental issues or patrolling or testing
- v. Configuration Update:
 1. Update schedule for brightness level operation hours
 2. Command on Demand: It should be possible to send commands to Real-time monitoring system to update configuration or control operations, if required.
 - 3.

Communication Protocol:

- vi. RMS should provide data on scalable IoT communication protocols as required by respective SNA to establish communication with thousands of systems.

- vii. RMS and SEDM Software will communicate using Internet of Things – Secure TCP socket Protocol • RMS will send data in open formats like JSON message format.
- viii. Communication between RMS and Server would be secured and encrypted using TLS/SSL/X.509 certificate. • Communication between Server and end user would be secured and encrypted using TLS/SSL/X.509 certificate.
- ix. As a part of IoT protocol, authentication and authorization would be implemented using token/password mechanism between monitoring system at well sites and server

c. Security:

- i. Communication between RMS and Server should be **secured and encrypted** using TLS/SSL/X.509 certificate etc.
- ii. As a part of IoT protocol, **Authentication and Authorization** should be implemented using token/password mechanism.

d. Message Format:

- i. RMS should provide data in a JSON message format as required by respective SNA.
- ii. For each high-mast system RMS should be capable of showing the current and updated status of network service availability.
- iii. Automatic Facility of Sending Live status of Faulty / Alarm/Breakdown of any solar High mast to JREDA mail & Contact no. etc. as per JREDA requirement.

e. Data Storage:

- i. In case of unavailability of cellular network, RMS should store data locally and on availability of network it should push data to central Server.

5. Central Gateway Module:

- f. Solar Smart Mast System, a cutting-edge technology that revolutionizes Solar high mast lighting. This control unit communicates with a remote server through a cellular network, allowing to access information about the lights using a simple interface. The control unit is also equipped with GPS, so it knows where each light is located.
- g. Each Solar High Mast will be equipped with a central Gateway Mono-crystalline Module (CGM) that will establish a connection with a remote cloud server.
- h. The CGM will communicate with the cloud server using GSM/GPRS technology, allowing users to access data through a user interface.
- i. Successful bidder should provide the Sim card for communication purpose accordingly the network access of the installed area/Location.
- j. Installation of the CGM will be carried out on every high mast pole, and it will be responsible for connecting 4 Solar Flood Lights to the system.
- k. The CGM will be equipped with an integrated GPS Mono-crystalline Module to provide geolocation information for both the pole and the connected Solar LED Lights.
- l. The CGM will support the use of 3G/4G SIM Cards from any reputable service provider to ensure reliable connectivity

4. MQTT Topic Structure

Application Node / Version	Solution Type	Device ID	Message Type	Access Level
IIoT-1	Highmast Light System	IMEI Number	Info	Subscribe
			OTP	Subscribe

			Data	Publish
			On Demand	Subscribe
			Config	Subscribe

6. Technical Requirement/Standards

Component	Standard	Description
1. PV Module- Design	IEC 61215-1:2016	Terrestrial Photovoltaic (PV)modules- Design qualification and type approval- Part 1 : Test requirements
	IEC 61215-1-1:2016	Terrestrial Photovoltaic (PV) modules- Design qualification and type approval- Part 1-1 : Special requirements for testing of crystalline silicon photovoltaic (PV) modules
	IEC 61215-1-2:2016	Terrestrial Photovoltaic (PV) modules- Design qualification and type approval- Part 2: Test procedures
2. Mono-crystalline Module Testing	IEC 61701: 2011	Salt mist corrosion testing of photovoltaic (PV) modules, wherever applicable
3. PV Mono-crystalline Module Safety	IEC 61730-1:2016	Photovoltaic (PV) Mono-crystalline Module safety qualification- Part 1: Requirements for constructi
	IEC 61730-2:2016	Photovoltaic (PV) Mono-crystalline Module safety qualification- Part 1: Requirements for testing
	UL 1703/ UL 61730	PV Mono-crystalline Module safety standards
4. Junction Box/ Fuses/Cut-Offs	IEC 62790: 2014	Junction boxes for Photovoltaic modules – Safety requirements and tests
	UL 2579	UL 2579: Low Voltage Fuses- Fuses for Photovoltaic systems, wherever required
5. Connectors	UL 4248-18	Fuse Holders- Part 18: Photovoltaic Systems
	IEC 62852: 2014	Connectors for DC-application in photovoltaic Systems- Safety requirement test
6. Battery	IP 25	Battery & BMS should be in IP-25 Box with the arrangement of proper ventilation but arrangement for prevention of insects.
7. Wires, Cable andCords	UL 1581 1554 / 694 Part 1:1988	Reference Standard for Electrical Wire, Cables and Flexible Cords
	UL 4703	Photovoltaic Wire
8.LED	LM -80-08 LM 79-08 IEC6238 4	LED performance Luminary performance Driver safety
9. Electronics Protection	As per IS /IEC	Over Voltage Protection Under Voltage Protection Short Circuit Protection Open Circuit Protection Surge Protection of 10KVA

		Reverse Polarity Protection (Input and Output)
10.Electronics Units	MPPT Charge Controller	EN50530 IEC 62093 Equivalent BIS Std

Testing Perform During PDI visit:

Agency should be submitted below documents.

1. FTR
2. QAP (Quality Assurance Plan)/Quality Control Report
3. Calibration Certificate of all testing equipment's.
4. Attachment of Certified BOM.
5. Other Documents as per requirement

Battery:

- i. Battery performance test as per IEC 62620:2014.
- ii. Visual and Dimensional Check
- iii. Polarity Test
- iv. Internal resistance test Report
- v. BMS (Battery Management System) testing Report
- vi. Cell Sorting Report of Cylindrical Report LiFePO4.
- vii. Cell Internal Resistance Report.
- viii. Technical Specification of Cylindrical LiFePO4 Cell
- ix. Technical Specification of Cylindrical LiFePO4 Battery
- x. BIS of Cylindrical LiFePO4 Battery
- xi. Technical Specification of BMS.

Solar PV Module:

- i. Visible check
- ii. Flash Test
- iii. Electroluminescence Test
- iv. Insulation Resistance Test
- v. Hi-Pot Test
- vi. DCW Test
- vii. Wet Leakage Test
- viii. JB pull Out Test

Luminary:

- i. Visual and Dimensional Check
- ii. Over voltage protection: As per IS standard
- iii. Insulation Resistance and Electric Strength
- iv. Measurement of Leakage Current
- v. Creepage Distances and Clearances
- vi. IES-LM-79 Reports

vii. IES-LM-80 Report for LED Chip

Control Driver Testing:

- i. Visual Check
- ii. Efficiency Test
- iii. IR test
- iv. RMS Monitoring & GPS Data Validation and Data Verification.

Pole:

- i. Visual, Dimension, Safety and Thickness check
- ii. GI Coating Check >80 micron
- iii. Raw Material Visual Specification
- iv. Adhesion Test (Hammering Test)

Structural drawing including foundation drawing and electrical drawing for 60W/of High Mast Pole from the installer should be submitted duly verified and certified by Structural Engineer / Chartered Engineer with request letter of PDI. Agency should submit the above certificate with PDI request.

****STAAD Pro-report & Wind Load Calculation of Pole for High Mast Pole verified and certified by Structural Engineer / Chartered Engineer.**

****JREDA will have the authority of on-site quality check of the installed Solar High Mast Lighting System if required.**

6.1. MECHANICAL HARDWARE

A. High Mast Pole:

A galvanized metallic frame structure to be fixed on the pole to hold the SPV module(s). The frame structure should be fixed at 20-30 degrees from horizontal facing true south.

The pole should be hot deep Galvanized Iron 20-sided polygonal pole in single length Height as per specification as under:

The material of pole shall be as per specification of BS EN 100025, ISO 1461.

SHMLs sheet should be reputed brand i.e. Tata Steel, SAIL & Jindal Steel Only. Manufactures should be submitted the invoice copy for Purchase of Sheet before request for PDI.

The battery either shall also be rested on this pole at suitable height hence ~~plain~~ should be made accordingly.

The pole shall be mounted on suitable RCC foundation 300 mm ~~above~~ ground with Minimum 6 bolt of min 24 mm size

The Nut -Bolts in battery box and panel structures should be proper riveted to ensure the theft.

The design and foundation details of the pole shall be got approved from JREDA before execution of work.

Test certificate, Galvanized Certificate etc. of the mounting hardware /Pole should be submitted from approve NABL Lab.

Each J-Bolt shall be provided with a minimum of **three (3) galvanized iron (GI) nuts**, along with **plain washers, spring (cut) washers, and one anti-theft nut.**

The arrangement shall:

- Ensure proper tightening and secure locking of the structure.
- Include **plain washers** to distribute load evenly.

- Include **spring (cut) washers** to prevent loosening due to vibration.
- Include at least **one anti-theft nut** per J-bolt to prevent unauthorized removal.
- All components shall be **hot-dip galvanized** and conform to relevant IS standards

**** Feature of SHMLS**

Technical Specifications for MMS & Accessories

1. Module Mounting Frame Support

The solar module mounting frame shall be designed to **support the full frame of the solar module**, ensuring uniform load distribution and preventing any mechanical stress or deformation.

2. Tilt Angle and Orientation

All module supporting angles shall be installed with a **south-facing inclination of 15°–20°** to ensure optimal solar energy utilization.

3. Structural Strength

The structure shall be robustly designed to provide **adequate structural support for SHML solar modules**, capable of withstanding wind loads and environmental conditions.

4. Docking Arrangement for Pole Mounting

Provision shall be made for **proper docking with a minimum docking length of 50 mm**, ensuring secure locking at the **pole head for lantern carriage arrangement**.

5. Battery Mounting Arrangement Hanging type battery arrangement is strictly not acceptable.

6. Battery shall be housed in a proper battery box, with internal dimensions (L × W × H) at least 50 mm larger than the battery size.

7. The battery shall be supported within a 30 × 3 mm MS cage with proper mounting provisions to ensure stability and safety.

8. Luminary Mounting Provision

Adequate provision shall be made for installation of a **flood-type luminary**, ensuring proper alignment and secure fixing.

9. Manual Locking Mechanism in Gear Box

To avoid any damage or mishap during operation, a **Manual locking mechanism** shall be provided in the gearbox system.

10. All components shall be of suitable grade and corrosion-resistant (GI/HDG) to ensure durability, structural stability, and anti-theft protection.

11. During Installation Each J-bolt shall be provided with plain washers, spring (cut) washer, 1 (one) number of anti-theft nut, 1 (one) number of Fischer lock nut, and 2 (two) numbers of standard nuts, ensuring proper tightening, vibration resistance, and protection against theft or tampering.

12. The MMS rope holding bracket shall be equipped with a robust locking mechanism (such as a mechanical lock/padlock arrangement) to ensure safety by preventing unintended release of the rope and unauthorized operation during maintenance of the high mast system.

13. The gearbox shall be designed with a maximum reduction ratio of 40:1 (Input Rotation: Output Rotation) to ensure smooth, controlled, and efficient raising and lowering operations of the system. The gearbox shall be robust, maintenance-friendly, and suitable for manual operation under field conditions.

14. The MMS structure shall be provided with a robust and adequately sized resting platform made of MS (hot-dip galvanized) to ensure safety during operation and maintenance. The platform shall be designed to support the load of the luminaire carriage/rope mechanism during servicing, preventing accidental slippage or free fall, and shall allow safe working access for maintenance,

B. Battery box:

Two vented metallic boxes of 20 SWG thick made of galvanized MS sheet with 80 microns thickness for housing the storage battery outdoors should be provided with proper lock and key. The boxes should be inscribed with JREDA written on at least two faces. The size of box should be as per battery size (including vent plug/level indicator) providing minimum clearance of 25 mm on all sides. Louvers for proper ventilation should be provided on one side and back of the battery box. No vent shall be providing on top of battery box. Box should be provided with proper locking arrangement. The edges of box should be turned properly to give a smooth edge and good strength. Two wooden battens should be fixed inside the battery box to avoid the electrical contact between battery and box. Components and hardware shall be vandal and theft-resistant. All parts shall be corrosion-resistant.

**** Battery Mounting should be proper. For Resting the Battery box proper Cage using GI plat should be Available.**

**** Battery Box should be made from 1 mm GI Sheet/ ABS (Acrylonitrile Butadiene Styrene) Battery Box with Proper resting Platform on MMS Structure with 30*2.5 mm GI Cage.**

A. Electric cable

The electric cable used shall be twin core PVC insulated water and UV resistance copper cable of minimum size 1.5mm. Cable shall meet IS 1554 / 694 Part 1:1988 & shall be of 650 V/ 1.1 kV.

B. Earthing Arrangement

- i.** Preferably Marconite earthing shall be provided for Solar Mast System.
- ii.** For safety purposes, it shall be ensured during installation that the earthing is capable of taking care of leakage current.
- iii.** Earthing should be as per IS 3043.1987.
- iv.** Minimum Two No. of Earthing Pit required for Lightning and During the Inspection time Earthing pit value should be check with calibrated earthing Resister Tester. Earthing Value should be $\leq 5 \Omega$ During inspection time.

C. Lightning Arrestor

Lightning Arrestor should be a separate unit and confirming to IEC 62561 – 1, 2 & 7 detailed as below:

- i.** IEC 62561–1– Lightning Protection System Component (LPSC) – Part 1 – Requirement for connection components.
- ii.** IEC 62561– 2– Lightning Protection System Component (LPSC) – Part 2 – Requirement for conductors and earth electrodes.
- iii.** IEC 62561–7– Lightning Protection System Component (LPSC) – Part 7 – Requirement for earthing enhancing compounds

6.2. OTHER FEATURES

UID number of minimum computer font size 72 or 13 mm (issued by contractor) is to be embossed/ punch on pole between 1-1.5 meter above from ground level and in front of battery box by contractor/ bidder. Contractor/Bidder shall also make arrangement to emboss logo of state government and JREDA at visible height. The complaint to contractor/ bidder will have to rectify the

same to make/ restore the system to working position within 72 hours in the warrantee period of 5 years, failing which the system may be get rectified on contractor/ bidder cost and the cost will be recovered by contractor/ bidders pending claims what so ever and appropriate action as per non-compliance etc. of agreement will be considered/taken.

6.3. INSTALLATION OF SYSTEM:

The system should be properly installed at site. The SPV Mono-crystalline Module mounting structure along with telescopic 20-sided polygonal pole should be properly grouted depending upon the location and requirement of the site. The grouting should be such that it should withstand the maximum wind speed /storm of 180 kmph. The pole should be rest on a suitable foundation. (RCC Foundation size as per above dimension deep and 300 mm above the ground level. must have 6 nos. foundation bolts of 1000 mm & 24mm dia.) Adequate space should be provided behind the PV module/array for allowing un-obstructed air flow for passive cooling. Cables of appropriate size should be used to keep electrical losses to a bare minimum. Care should be taken to ensure that the battery is placed with appropriate leveling on a structurally sound surface. The control electronics should not be installed directly above the battery. All wiring should be in a proper conduit or capping case. Wire should not be hanging loose. Any minor items which are not specifically included in the scope of supply but required for proper installation and efficient operation of the SPV systems is to be provided by the manufacturer as per standards.

Minimum 4 No. of SS Type D-Clamp should be used for each Joint for fixing the Rope in MMS.

Successful Installation should be ensure that Solar Module Inclined should be in South Facing at the time of Erection & Installation.

Cable Dressing should be proper laying in Flexible **Conduit pipe (UPVC)** with proper cable Tie.

6.4. Warranty

The mechanical structures, electrical works including power conditioners/inverters/charge controllers/ maximum power point tracker units/distribution boards/digital meters/ switchgear/storage batteries, etc. and overall workmanship of the SPV power plants/ systems must be warranted against any manufacturing/ design/ installation defects for a minimum period of 5 years.

6.5. Traceability of the product to be supplied

In order to prevent the misuse of the product such as unauthorized sale or diversion to the open market, the following incorporation shall be made in the product.

- A. Engraving (or) Screen printing of JREDA at a suitable place on the main components viz., SPV Panel, Battery, LED Lighting Units to be used in the installation of the solar high mast lighting systems.
- B. The unique system ID number as provided by JREDA shall be embossed or punch or permanently riveted on each pole and battery box of the system

6.6. Operation And Maintenance Manual

An Operation and Maintenance Manual in Hindi should be provided with the Solar Mini Mast System. The Manual should have information about Solar Modules, Luminary, Battery, Controller, electronics, and switches. It should also have clear instructions about DO's and DONT's and on regular maintenance and Trouble Shooting of the system. Helpline number and Name and address of the Service Centre and contact number of authorized representatives to be contacted in case of failure or complaint should also be provided. A warranty card for the modules and the system

should also be provided to the beneficiary.

Format for Covering Letter

**Tender Reference No.: NIB-2/JREDA/SHMLS/RC/25-
(To be submitted in the official letter head of the company)**

Annexure-1

To,

The Director,
Jharkhand Renewable Energy Development
Agency 3rd Floor, S.L.D.C. Building,
Kusai Colony, Doranda, Ranchi - 834502.

Sub: Design, Supply, Installation, Testing & Commissioning including 5 years Comprehensive Maintenance Contract (CMC) of LED based solar High Mast Lightning systems (SHMLS) including Remote Monitoring System (RMS) with Lithium Ferro Phosphate Battery on Turnkey basis across the state of Jharkhand

Sir,

We are hereby submitting our offer in full compliance with the terms and conditions of the above NIB No.....

We have submitted the requisite amount of Rs. of EMD (Refundable) & Tender Fee (Non-Refundable) through Online Via SBI Payment Gateway of Jharkhand Tenders . Validation of EMD valid for twelve months.

The tender is uploaded on www.jharkhandtenders.gov.in as per the requirement of the website separately Technical Bid & Financial Bid.

Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

Note: MSME bidders of Jharkhand must submit necessary documents for claiming exemption of EMD and Bid fee.

Annexure-1a
Undertaking by MSMEs of Jharkhand for availing preferential treatment
NIB: 05/JREDA/SHMLS/RC/26-27
(To be submitted in the official letter head of the company)

I/We _____ (here in after referred to as MSME bidder) 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**

- i. The Manufacturing or Services unit is located at..... District in the State of Jharkhand.
- ii. The Head office or Corporate Office of the unit/company/enterprise is at..... Within the territorial Jurisdiction of Jharkhand.
- iii. The unit/company/enterprise is registered with (tick):-
 - a. Directorate of industries/District Industries Center, (Copy attached).
 - b. Khadi and Village Industries Board, (Copy attached).
 - c. Directorate of Handloom, Sericulture and Handicraft of Jharkhand Govt., (Copy attached).
 - d. Industrial Area Development Authorities, (Copy attached).
 - e. National Small Industries Cooperation Ltd, (Copy attached).
 - f. Other body specified by Directorate of Industries, Jharkhand Govt. from time to time and other industrial units/enterprises which have submitted IEM and been issued Date of Production (DOP) certificate by GM, DIC/MD, Industrial Area Development Authorities Director, Industries, GoJ.
 - g. MSME having Udyog Aadhar Number..... issued by Ministry of Micro, Small and Medium enterprises, Gol and has been duly verified, whether unit is existing / functional and doing regular production at (Specify capacity) by GM, DIC/MD, Industrial Area Development Authorities / Director, Industries, GoJ”, (Copy attached).
- iv. The unit/company/enterprise is registered under Jharkhand Goods and Services Tax (JGST) Act-2017 or The Central Goods & Services Tax (CGST) Act 2017, (Copy attached).
- v. The unit/company/enterprise have encouraged local people in employment.
- vi. The unit/company/enterprise complies with all statutory and legal formalities of concerned regulators/ Act.
- vii. That the product/services being supplied to JREDA has been manufactured/created by the unit located in Jharkhand only and agree to submit details of batch number/date or any other identifiable tag as per prevalent practice.

Signature of Authorized Signatory)

Name: Designation:

Company Seal

(This bid Performa must be submitted duly signed in case separate sheet I submitted)

Annexure-2

Check List for Technical bid NIB: 05/JREDA/SHMLS/RC/26-27

Sr. No.	Particulars	Uploaded Yes / No	**Page No.
1.	Receipt of Tender Fee and EMD submission through Online Via SBI Payment gateway of Jharkhand Tender.		
2.	Covering Letter as per Annexure-1a		
3.	Firm's registration certificate company /Pvt. Ltd. / Proprietorship firm/Partnership/corporation/ LLP		
4.	Registration certificate of MSMEs of Jharkhand including Certificate issued by GM DIC Industry Dept. for system/components (Luminary /Battery/ Solar Module)manufacturing.		
5.	ITR for the assessment year AY 2023-24, 2024-25& 2025-26.		
6.	Financial Statements (i.e., Balance sheet & Statement of Profit or Loss) for the last 3 consecutive financial years (i.e. FY 2022-23, 2023-24 & 2024-25) as certified by Chartered Accountant		
7.	Annual Turnover (FY 2022-23 , 2023-24 & 2024-25) as certified by Chartered Accountant with UDIN (Attached copy of Verified UDIN from https://udin.icai.org/search-udin)		
8.	Covering Letter as per Annexure-5		
9.	Net Worth certificate as on 31 March 2025 certified by Chartered Accountant with UDIN (Attached copy of Verified UDIN from https://udin.icai.org/search-udin)		
10.	Covering Letter as per Annexure-6		
11.	GST certificate.		
12.	PAN Card.		
13.	List of current litigant cases in which the bidder is involved (in format given in ITB).		
14.	An affidavit for non-engagement of related persons.		
15.	Authorized address & contact numbers of the bidder as per instruction in the Notice Inviting Bid duly digitally signed.		
16.	Bid Capacity Declaration.		
17.	Covering Letter as per Annexure-1.		
18.	Covering Letter as per Annexure-1A Undertaking by MSEs of Jharkhand for availing preferential treatment		
19.	Checklist for Technical Bid as Per Annexure-2.		
20.	Information about the Bidder as per Annexure-3.		
21.	Declaration by Bidder as per Annexure-4.		
22.	Power Of Attorney for signing Bid Annexure-7		
23.	Covering Letter Annexure-8		
24.	Annexure-8: Proof of supply/execution of Solar High Mast Lighting System in		

	any SNA/Govt. organization/PSU in the last seven years. Attach copy of Work Order/Purchase Order along with Performance certificate /Completion certificate.		
25.	Technical Details as per Annexure-9.		
26.	Contact Person for the NIB. Annexure-10		
27.	Warranty Card as per Annexure-v		
28.	JREDA Contractor Registration Certificate.		
29.	Electrical Contractor license		
30.	The proof of supply of solar system in any SNA/Govt. organization/PSU in the last seven years as per Annexure-8 to indicate the quantity already supplied. Attach copy of the order and certificate indicating its successful execution.		
31.	For Claim the MSME/New MSME Benefit of Jharkhand Attachment of Proof of Manufacturing of Solar PV Mono-crystalline Module Manufacturers with the BIS Standards and are having the following minimum 19 % Mono-crystalline Module efficiency. or Proof of Manufacturing Lithium Ferro Phosphate Battery which comply with the BIS Standard or Proof of Manufacturing Luminary Test Certificate LM-79 (60 W) & LM -80 Certificate proved by MNRE/NABL LaLaboratory MSE/New MSE of Jharkhand.		
32.	Authority Letter for Signing Bid Document as per Annexure-7		

Please number the pages of the uploaded documents and write it in the box

Please ensure:

- i) That all information is provided strictly in the order mentioned in the check list mentioned above.
- ii) Bidders are advised to strictly confirm compliance to bid conditions and not to stipulate any deviation/conditions in their offer. Subsequent to bid submission, JREDA may or may not seek confirmations/clarifications and any offer(s) not in line with Bid conditions shall be liable for rejection.
- iii) Any clarification/confirmation bidder may require shall take from JREDA before submission of the bid. Bidder shall submit complete bidding document including subsequent amendment, modification and revision, duly signed and stamped as a token of having read, understood and accepted all the terms and condition mentioned therein.

Signature of Authorize Signatory)

Name:

Designation:

Company Seal:

Annexure-3
NIB: 05/JREDA/SHMLS/RC/26-27
Information About the Bidding Firm

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

SL. No.	Particulars
1.	Name of the Bidder
2.	Address of Bidder with Telephone, Fax, email
3.	Address of the Registered Office
4.	Address of the works
5.	GPS Co-ordinate of Registered Office
6.	GPS Co-ordinate of Factory Campus
7.	Name & Designation of Authorized Signatory for Correspondence (Attach Power of Attorney as per Annexure-6)
8.	Nature of Firm (Proprietorship/Partnership Nature of Firm (Proprietorship/Partnership
9.	Permanent Account Number (PAN)/TIN (Attach proof)
10.	Firm's Registration Number (Attach proof)
11.	GST Number (Attach proof)
12.	Specify the Item Originally Manufactured by the Bidder (SPV module/Electronics/Battery)
13.	Registration Number of the firm/co. (Copy of Registration Certificate issued by Industry Department)
14.	Details of in-house testing facility (Attach Proof)
15.	Office/ Dealer and Service network in Jharkhand with TIN No. (Give details)
16.	Quoted quantity (Mandatory)
17.	Receipt of Tender Fee and EMD submission through Online Via SBI Payment gateway of Jharkhand Tender.
18.	Place where Materials will be Manufactured
19.	Place where Materials will be Available for Inspection
20.	Other details and remarks, if any

Yours faithfully,

(Signature of Authorized Signatory)

Name:

Designation:

Company

seal:

Annexure-4
Declaration by the Bidder
NIB: 05/JREDA/SHMLS/RC/26-27

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

I/We _____ (here in after referred to as the Bidder) being desirous of tendering for the rate contract for 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 Bidder is fully aware of all the requirements of the tender document and agrees with all provisions of the tender document.
2. The Bidder is capable of executing and completing the work as required in the tender.
3. The Bidder accepts all risks and responsibilities directly or indirectly connected with the performance of the tender.
4. The Bidder has no collusion with any employee of JREDA or with any other person or firm in the preparation of the bid.
5. The Bidder has not been influenced by any statement or promises of JREDA or any of its employees, but only by the tender document.
6. The Bidder is financially solvent and sound to execute the work.
7. The Bidder is sufficiently experienced and competent to perform the contract to the satisfaction of JREDA.
8. The information and the statements submitted with the tender are true.
9. The Bidder 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 Bidder has not been debarred or blacklisted by any SNA/ Government Dept. /PSU etc.
11. This offer shall remain valid for Six months from the date of opening of the tender.
12. The Bidder gives the assurance to execute the tendered work as per specifications terms and conditions.
13. The Bidder confirms the capability to supply and install required no. of systems per month.
14. The Bidder accepts that the earnest money be absolutely forfeited by JREDA if the Bidder fails to undertake the work or sign the contract within the stipulated period.

Yours faithfully,
(Signature of Authorized Signatory)
Name:
Designation:
Company seal:

Annexure-5
Format for Financial Requirement – Annual Turnover
NIB: 05/JREDA/SHMLS/RC/26-27

[On the letterhead of Bidding Company]

To,

The Director,
Jharkhand Renewable Energy Development
Agency 3rd Floor, S.L.D.C. Building,
Kusai Colony, Doranda, Ranchi -834502

Sub: Design, Supply, Installation, Testing & Commissioning including 5 years Comprehensive Maintenance Contract (CMC) of LED based solar High Mast Lightning systems (SHMLs) including Remote Monitoring System (RMS) with Lithium Ferro Phosphate Battery on Turnkey basis across the state of Jharkhand

Dear Sir,

We certify that the Bidding Company had an average Annual Turnover of Rs. -----
based on audited annual accounts of the last three years ending 31.03.2025.

Sl.No.	Financial Year	Turn over (in Rupees)
1.	2022-23	
2.	2023-24	
3.	2024-25	
	Average Annual Turnover	

UDIN No.

Authorized Signatory
(Power of Attorney holder)

Statutory Auditor
(Stamp & Signature)

Annexure-6
Format For Financial Requirement - Net Worth Certificate
NIB: 05/JREDA/SHMLS/RC/26-27

[On the letterhead of Bidding Company]

To,

The Director,
Jharkhand Renewable Energy Development Agency
3rd Floor, S.L.D.C. Building,
Kusai Colony, Doranda, Ranchi - 834502

Dear Sir,

Sub: Rate Contract for Design, Supply, Installation, Testing & Commissioning including 5 years Comprehensive Maintenance Contract (CMC) of 60 W LED based solar High Mast Lighting systems (SHMLS) including Remote Monitoring System (RMS) & Global Positioning System (GPS) with Lithium Ferro Phosphate Battery on Turnkey basis across the state of Jharkhand.

This is to certify that Net worth of {insert the name of Bidding Company}, as on 31st March 2025 is Rs. The details are appended below.

Particulars	Amount (In Rs.)
Equity Share Capital	
Add: Reserves	
Subtract: Revaluation Reserve	
Subtract: Intangible Assets	
Subtract: Miscellaneous Expenditure to the extent not written off and carried forward losses	
Net Worth as on 31 st March 2025	

UDIN No.:

Authorized Signatory
(Power of Attorney holder)

Statutory Auditor
(Stamp & Signature)

Annexure -7
Format of Power of Attorney for Spring Bid
NIB:05 /JREDA/SHMLs/RC/26-27

POWER OF ATTORNEY

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.)

Know all men by SS presents, we(name and address of the registered office)
do hereby constitute, appoint and authorize Mr. / Ms... (Name and residential address) who is
Presently employed with us and holding the position of.....

as our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our bid for NIB:05 /JREDA/SHMLs/RC/26-27, including signing and submission of all documents and providing information / Bids to Jharkhand Renewable Energy Development Agency, representing us in all matters before [Insert Name], and generally dealing with Jharkhand Renewable Energy Development Agency in all matters in connection with our bid for the said Project.

We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us.

For:

..... Signature
(Name, Designation and Seal)

Accepted by
..... (Signature)
(Name, Designation and Seal)

(Name, Title and Address of the Attorney)

Note: The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, lay down by the applicable law and the charter documents of the executants (s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.

Annexure-8
Details of Orders Received and Executed in Last 7 Years
NIB No: 05/JREDA/SHMLS/RC/26-27

Rate Contract for Design, Supply, Installation, Testing & Commissioning including 5 years Comprehensive Maintenance Contract (CMC) of 60 WLED based solar High Mast Lightning systems (SHMLS) including Remote Monitoring System (RMS) & Global Positioning System (GPS) with Lithium Ferro Phosphate Battery on Turnkey basis across the state of Jharkhand.

Only Submit the Details of Orders Received & Executed by the Bidder for Design, Supply, Installation, Testing & Commissioning LED Solar High Mast Lighting Systems/Solar Street Light Light including 5 years Comprehensive Maintenance Contract (CMC) to SNA/ Govt.Organi**zation during Last Seven Years.**

SL. No.	Name of Agency/ Organization	Details of Work Order / Purchase Order	Technical Specification	Order Amount (in Rs.)	Details of Performance/ Completion certificate	Page number of the Work order/ purchase order submitted	Page number of the Performance / Completion certificate submitted

Yours faithfully,
 (Signature of Authorized Signatory)
 Name:
 Designation:
 Company Seal:

Note:

- (a) Attach Photocopies of Purchase Orders
- (b) Attach Photocopies of Certificate of Satisfactory Performance Certificate Issued by Concerned Nodal Agency/*PSU*/Govt. Organization
- (c) Separate sheet may be used for giving detailed information in seriatim duly signed with page number.
- (d) Proof of work order/purchase order and corresponding performance certificate should be submitted/enclosed in the bid.

Annexure-9
Price Bid
(To be Online submitted in.pdf file with price bid)
NIB: 05/JREDA/SHMLS/RC/26-27

Rate Contract for Design, Supply, Installation, Testing & Commissioning including 5 years Comprehensive Maintenance Contract (CMC) of 60 W LED based solar High Mast Lightning systems (SHMLs) including Remote Monitoring System (RMS) & Global Positioning System (GPS) with Lithium Ferro Phosphate Battery on Turnkey basis across the state of Jharkhand.

S. No.		Min/Max. Quantity	Quoted Quantity	Unit Rate (Excluding GST In Rs.)	Amount in Words
	1	2	3	5	6
01	60 W LED based solar High Mast Lightning systems (SHMLs)	20/80			

Brief Summary of Technical Specification

Technical Specifications	
RMS & GPS Based Luminary (W)	60 W
Mono Solar Module (Wp)	200.00 Wp
Battery Capacity (Min.)	1560.00 Wh
SHMLs Pole (Mtr.)	9.00 Mtr.

****If price Bid is submitted with the technical part; the bidder will be disqualified by JREDA.**

- 1 It is mandatory for all bidders to submit their Price-Bid (Excluding GST) only through online (e-tendering).
- 2 Above quoted price for LED based SHML are complete in all respect as per Technical Specifications excluding GST and inclusive of all Central/State/Local taxes & duties, packing, forwarding, transit insurance, loading & unloading, transportation & other charges etc. For destination at any site in Jharkhand and inclusive of installation, testing, commissioning, performance testing and training.
- 3 Certified that rates quoted for LED based SHML are as per specifications, terms & conditions mentioned in the bid document.

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

(This bid Performa must be submitted duly signed in case separate sheet is Submitted

Annexure-10
Contact Person for the NIB
NIB No: 05/JREDA/SHMLS/RC/26-27

[On the letterhead of Bidding Company]

1.	Contact Person name for the NIB	
2.	Name of Project	Sub: Design, Supply, Installation, Testing & Commissioning including 5 years Comprehensive Maintenance Contract (CMC) of LED based solar High Mast Lightning systems (SHMLs) including Remote Monitoring System (RMS) with Lithium Ferro Phosphate Battery on Turnkey basis across the state of Jharkhand.
3.	Contact Person name for the NIB	
4.	Designation	
5.	Contact No. (phone & mobile)	
6.	Fax No.	
7.	e-mail ID	
8.	Corresponding address with pin code	
9.	Remarks	

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal:

Annexure-I
Certificate of Supply of RMS Based LED Based Solar High Mast
Lighting Systems Compliance by the Supplier
NIB: 05/JREDA/SHMLS/RC/26-27

Rate Contract for Design, Supply, Installation, Testing & Commissioning including 5 years Comprehensive Maintenance Contract (CMC) of 60 W LED based solar High Mast Lightning systems (SHMLS) including Remote Monitoring System (RMS) & Global Positioning System (GPS) with Lithium Ferro Phosphate Battery on Turnkey basis across the state of Jharkhand.

M/shas successfully dispatched material of Nos. of LED-based Solar High Mast Lighting Systems on and during physical verification and checking of parts of SHMLS found in good condition.

1. **Name of District:**.....
2. **Name of Block:**.....
3. **Name of Location:**.....
4. **Solar High Mast Lighting Systems:**.....

Sl. No.	Equipment's	Make	Wattage	Qty.	Serial Number of equipment
1.	Solar PV Modules				
2.	Battery (Lithium iron phosphate battery)				
3.	LED Luminaries				
4.	High Mast Pole-Mtr.				
5.	Other Material				

Checklist for Supply the SHMLS: -

Sr. No.	Equipment's Name	**Delivery Challan	**E-WAY Bill Fron Manufacturer Unit to Site Location	Date of E-Way Bill Generated	Date of Supply	**Attachment of Geo-Tag Photographs	Attachment of Other Documents	Remarks
01	Solar PV Modules							
02	Battery (Lithium iron phosphate battery)							
03	LED Luminaries							
04	High Mast Pole-Mtr.							

Note: Geo-Tag Photograph must be enclosed.

.....

Signature of Supplier along with Seal

Date.....

Annexure-III
Certificate of Installation of RMS Based LED Based Solar High Mast
Lighting Systems Compliance by the Supplier
NIB: 05/JREDA/SHMLS/RC/26-27

[On the letterhead of Bidding Company]

Rate Contract for Design, Supply, Installation, Testing & Commissioning including 5 years Comprehensive Maintenance Contract (CMC) of 60 W LED based solar High Mast Lightning systems (SHMLS) including Remote Monitoring System (RMS) & Global Positioning System (GPS) with Lithium Ferro Phosphate Battery on Turnkey basis across the state of Jharkhand.

M/s has successfully installedNos. of

LED based Solar High Mast Lighting Systems on and are in working condition since seven days:

Details of the installed site is given below.

Sr. No.	Name of District as Per Dispatched Instruction (DI)	Name of Block	Name of Location	Latitude	Longitude	Attachment of Geo-tag Photographs
1.						

Serial Number of equipment					
Sr. No.	Name of Location	Solar PV Module Wp	Battery 12.8/25.6 V ,120 AH	RMS-based LED Luminaries (60 W)	High Mast Pole 9
01.					
02	RMS Recharge	Date of Recharge		Validity of Recharge	

Note: Separate Annexure & Geo-Tag Photograph must be enclosed for each & every Individual Location.

Signature of Signature of Supplier along

Annexure-IV
Format for Quarterly O&M and CMC Report
NIB No: 05/JREDA/SHMLS/RC/26-27

[On the letterhead of Bidding Company]

To,
 The Director,
 Jharkhand Renewable Energy Development Agency
 3rd Floor, S.L.D.C. Building, Kusai
 Colony, Doranda, Ranchi-834502.

Dear Sir,

Sub: Rate Contract for Design, Supply, Installation, Testing & Commissioning including 5 years Comprehensive Maintenance Contract (CMC) of 60W LED based solar High Mast Lightning systems (SHMLS) including Remote Monitoring System (RMS) & Global Positioning System (GPS) with Lithium Ferro Phosphate Battery on Turnkey basis across the state of Jharkhand.

Date of Installation.
 Name of District.....
 Name of Block.....
 Name of Location
 JREDA Work Orde No.....
 Name of Technicians:

Sr. No.	System Details	Date of Site Visit/CMC	Fault observation	Fault repaired	Status of the system
1	Mono-crystalline Module No.				
2	Battery No.				
3	Charge Controller No.				
4	Luminaries				
5	RMS System status				

Sr. No.	Location Name	Date of Online Report Generation (Monthly)	Current Status Battery (Healthy/Breakdown)	Current Status Luminary (Healthy/Breakdown)	Current Status Solar High mast System (Healthy/Breakdown)	Luminary status
01						

Data Availability & Connectivity Status:

Note: Geo-tag photograph & Quarterly RMS data must be enclosed.

Period of CMC.....

(Signature of Consignee)
 Name: Designation:
 Signature of Agency with Seal

Annexure-V
Warrantee Card
NIB No: 05/JREDA/SHMLS/RC/26-27

Rate Contract for Design, Supply, Installation, Testing & Commissioning including 5 years Comprehensive Maintenance Contract (CMC) 60 W LED based solar High Mast Lightning systems (SHMLS) including Remote Monitoring System (RMS) & Global Positioning System (GPS) with Lithium Ferro Phosphate Battery on Turnkey basis across the state of Jharkhand.

1.	Name & Address of the Manufacturer/ Supplier of the System	
2.	Name & Address of the Purchasing Agency	
3.	Date of Supply of the System	
4.	Details 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 Up To	
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/20 or C/10 Rated at 27°C	
	(g) Guarantee Valid Up To	
6.	Details of Luminary	
	(a) Name of the Manufacturer	
	(b) Make	
	(c) Model	
	(d) Serial No(s).	
	(e) Month & Year of Manufacture	
	(f) Guarantee Valid Up To	
7.	Details of High Mast Pole	
	(a) Name of the Manufacturer	
	(b) Make	
	(c) Model	
	(d) Serial No(s).	
	(e) Month & Year of Manufacture	
	(f) Guarantee Valid Up To	
8.	Designation & Address of the Person to be Contacted for Claiming Warrantee Obligations	

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

(Signature of Authorized Signatory with Name Designation & Company Seal)

Filling Instructions:

1. The RMS Based SHML components will be generally guaranteed as per General Terms & Conditions. The manufacturer can also provide additional information about the system and conditions of Guarantee as necessary. The Guarantee card to be supplied with the system must contain the details of the system supplied as per format given above.
2. During the Guarantee period JREDA/users reserve the right to cross check the performance of the systems.

Annexure-11
Undertaking
NIB: 05/JREDA/SHMLS/RC/26-27

(To be submitted in the official letter head of the Manufacturer during the PDI)

Sr. No.	Description	Project Details			
1.	Name of Project	Rate Contract for Design, Supply, Installation, Testing & Commissioning including 5 years Comprehensive Maintenance Contract (CMC) o 60 W LED based solar High Mast Lightning systems (SHMLS) including Remote Monitoring System (RMS) & Global Positioning System (GPS) with Lithium Ferro Phosphate Battery on Turnkey basis across the state of Jharkhand.			
2.	Name of purchaser with Address	Jharkhand Renewable Energy Development Agency, Ranchi, JH - 833672			
3.	Name of the Manufacturer with Address	M/s			
4.	Name of the Installer with Address	M/s			
5.	Warrantee Duration of Product (Years)	As per NIB			
6.	Details of the product and Quantity and Model No. offer for Inspection and Supply	Product Name	Capacity	Quantity	Sr. Nos.

This is to certify that technical specification of offered quantity during online Pre-Dispatch Inspection (PDI) carried out by JREDA /authorized representatives of JREDA at our manufacturing site are in line with the technical specification of the items/equipment's as defined in **NIB: 05/JREDA/SHMLS/RC/26-27** and Work Order no: - _____ Date: _____.

In case of any deviation in the technical specifications of the items/equipment's as defined in **NIB-05/JREDA/SHMLS/RC/26-27** and Work Order no: - _____ Date: _____, supplied by us at the project site, we will replace the whole lot or specified materials at our own cost as per the directions of JREDA.

- ** For Mono Crystalline Mono-crystalline Module Warrantee **should be minimum 25 Years.**
- ** For Solar High mast Pole Warrantee **should be minimum 25 Years.**
- ** For Luminary Warrantee Certificate **should be minimum 5 Years.**
- ** For Lithium Phosphate Battery Warrantee Certificate **should be minimum 5 Years.**

.....

Annexure-12
Site Survey Report
NIB: 05/JREDA/SHMLS/RC/26-27

Basic Site Survey Format before installation of SHMLs

Date of Site Visit	
Name of Districts:	
Name of Block:	
Name of Location:	
Nearest Land Mark area	
Contact Person of the Survey Person	
Name of Consignee Person	
Contact No.	
Name of the Survey Person:	
Latitude:	
Longitude:	
Size available for Excavation work for Foundation work (LXWXH) 1000X1000X5000 MM	
Is installation Area Shadow area.	
Is transportation of the SHMLS pole (9 Mtr.) is Possible for Given Location?	
Is Earthing rod installation Possible for SHMLs?	
Network available for RMS & GPS communication	
Any LV/HV cable available surrounding area?	
Proper Clerance between HV/LV cable & SHMLs Available During Installation?	
Any Tree / Building available surrounding area	
Land/ Area is suitable for Installation of SHMLS	
Is Site Feasible for Installation?	
Is any Minning area available near Installation Area?	
Ensure that Foundation should be not Filling Area / Dumping Area ?	
Photographs Attachment**	
Remarks:	