

MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

QUOTATION CALL FOR

SUPPLY, ERECTION, TESTING AND COMMISSIONING INCLUDING FIVE YEARS INSURANCE AND COMPREHENSIVE OPERATION AND MAINTENANCE OF TOTAL 06 METER HEIGHT 50W 09 NOS and 12W 01 NOS SOLAR STREET LIGHTS AT VARIOUS LOCATIONS OF GRAMPANCHYAT MINCHE TAL. HATKANANGALE DISTRICT KOLHAPUR IN MAHARASHTRA STATE.

Quotation Ref. No: DOK/Technical/Desk -1/2023-24/GPM



DIVISIONAL OFFICE
MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR
MAHARASHTRA, KOLHAPUR

(A Government of Maharashtra Institution)

Address: C.S.NO.249/A -1/55, E WARD, MHADA COMPLEX, NAGALA PARK,

NEAR ZILAPARISHAD, KOLHAPUR-416003 (M.S)

Contact No. 0231-2680009,

Email: medakolhapur@mahaurja.com

Website (for Tender): <https://mahatenders.gov.in>

MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

Quotation Call

Sub:Supply, Erection, Testing and Commissioning Including Five Years Insurance and Comprehensive Operation and Maintenance of Total 06 Meter Height 50W 09 Nos and 12W 01 Nos Solar Street Lights at Various Locations of Grampanchayat Minche Tal. Hatkanangale District Kolhapur in Maharashtra State.

With reference to subject matter, we would like to invite your quotes in sealed condition for undertaking the work with given technical specifications and technical standards with following terms and conditions –

- **Details and Dates: -**

| SR. No. | Particulars | Type of System | Project Capacity (Wp/Height) |
|---------|---|--|-------------------------------------|
| 1 | Name of System | Solar Street light | 50 Wp/06 Mtr and 12 Wp/06 Mtr |
| 2 | Estimated Cost | 5,51,561/- (Inclusive of all taxes and charges) | |
| 3 | Date and time for submission of quotations. | From 30/01/2024; 10:00 Hrs to 05/02/2024 18:00 Hrs | |
| 4 | Date and time for opening of quotations. | 06/02/2024; 10:00 Hrs | |
| 5 | Security Deposit | 15,000/- (to be deposited by online mode in favor of Maharashtra Energy Development Agency, Kolhapur) | |
| 6 | Address for submission of quotation | Maharashtra Energy Development Agency, Divisional Office Kolhapur SR.No. 249/A-1/55, E Ward, MHADA complex, Nagala Park, Near Zilla Parishad, Kolhapur-416003 | |

MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

1. LIST OF LOCATIONS –

| SR.NO. | Name of Location | Capacity | Nos. of |
|--------|--|--------------|---------|
| 1 | Water Supply Scheme Pump House, Latawade Road Near Desai Mala G.P. Minche Tal. Hatkanagle Dist. Kolhapur | 50 Wp/06 Mtr | 1 |
| 2 | Near Matang Samaj Smashanbhumi G.P. Minche Tal. Hatkanagle Dist. Kolhapur | 50 Wp/06 Mtr | 1 |
| 3 | Near Matang Samaj Hall G.P. Minche Tal. Hatkanagle Dist. Kolhapur | 50 Wp/06 Mtr | 1 |
| 4 | Near Shankar Ghatage House G.P. Minche Tal. Hatkanagle Dist. Kolhapur | 50 Wp/06 Mtr | 1 |
| 5 | Near Yesabai Ghatage House G.P. Minche Tal. Hatkanagle Dist. Kolhapur | 50 Wp/06 Mtr | 1 |
| 6 | Near Shreedhar Bapu Ghatage House G.P. Minche Tal. Hatkanagle Dist. Kolhapur | 50 Wp/06 Mtr | 1 |
| 7 | Near Parsu Hankare House G.P. Minche Tal. Hatkanagle Dist. Kolhapur | 50 Wp/06 Mtr | 1 |
| 8 | Near Shalini Udaybhan Jadhav House G.P. Minche Tal. Hatkanagle Dist. Kolhapur | 50 Wp/06 Mtr | 1 |
| 9 | Near Vinayak Ganpati Ghatage House G.P. Minche Tal. Hatkanagle Dist. Kolhapur | 50 Wp/06 Mtr | 1 |
| 10 | Near Rahul Nanaso Ghatage House G.P. Minche Tal. Hatkanagle Dist. Kolhapur | 12 Wp/06 Mtr | 1 |

2. ELIGIBILITY CRITERIA –

The manufacturer/supplier shall be eligible to quote for this work provided fulfilment of following.

1. Shall have a registered firm/company with GST registration within Kolhapur division.
2. Shall provide brief information in prescribed format (enclosed).
3. Shall not be black listed in any govt and/or other organizations.
4. Shall provide documentary proof about having experience of supply, installation and commissioning of minimum 10 nos of Solar Street lights.
5. Shall have an annual average turnover of Rs. 10 lakh per year for FY 2021-22 and 2022-23 duly certified by chartered accountant.
6. Shall provide self-attested copy of IT returns for FY 2021-22 and 2022-23 (Assessment year 2022-23 and 2023-24)

MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

7. Shall have arrangement of providing after sales service in area of installation of systems.
8. Start-Up's Entrepreneur/Enterprises_are eligible for the Exemption in Work Experience and Annual Turn Over as per govt. terms.
9. Start-ups who are participating in this tender and seeking exemptions of Work Experience and Annual Turn Over, should have registered Electrical Contractor License and shall submit the valid registration certificate.

3. TERMS AND CONDITIONS –

- 1) Location for installation of Solar street lights shall be assigned immediately by the user agency to the selected manufacturer/supplier to get the work done in stipulated time.
- 2) The installation of Solar street lights should be done in excellent manner and meet technical standards prescribed by the MEDA.
- 3) As per the technical criteria set by the Ministry of New and Renewable Energy, Govt. of India the solar modules should fulfill the IEC standards and shall be procured from manufacturer providing module with RFID tag.
- 4) The manufacturer/supplier shall provide valid test certificate of LED lamp and Battery from govt. approved test centers.
- 5) The manufacturer/supplier shall provide Solar Modules from the approved Manufacturers which are enlisted in MNRE's ALMM list.
- 6) If the Solar street lights does not function as per given standards then the loss incurred shall be borne by the supplier and paid to Grampanchayat Minche , Tal.Hatkanangale, Dist. Kolhapur
- 7) If contractor fails to complete the work then Security Deposit will be forfeited and contractor shall be blacklisted.
- 8) Supplier shall give training of system operation to a person duly nominated by user agency and same shall be informed to divisional office Kolhapur.
- 9) The Contractor / Agency should successfully complete the project within timeframe set out by the MEDA. For this purpose, contractor/Supplier shall provide Activity Bar Chart within a week time after issue of Work Order.
- 10) The manufacturer/supplier shall provide the user manual, warranty card to the user agency and copy of same shall be provided to MEDA Kolhapur.**
- 11) The manufacturer/supplier shall visit the site and ensure scope of work and ownership of land with respective Grampanchayat before submission of quote against the enquiry. In this context, the manufacturer/supplier should submit the Site Visit Report in given prescribed format along with this quote.
- 12) The work being of limited nature and to seek prompt after sales service the manufacturer/supplier within Kolhapur/Sangli District will be preferred while allotting the work against the invited quotes. Required documentary proof in this matter need to be submitted by concerned manufacturer/supplier along with quote.
- 13) The Contractor shall provide the detailed information about Company/firm in attached Format (Contractor's Information sheet)

MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

14) *The manufacturer/supplier shall submit their quotations in two different sealed envelopes i.e. First envelop shall contains documents a per the technical eligibility criteria and Second envelop shall contain Financial details (quoted rate).*

15) *The manufacturer/supplier should mention the subject on each sealed envelope i.e Technical Envelop and Financial Envelop.*

16) *The financial envelop of technically qualified manufacturer/suppliers will only be opened.*

4. INSURANCE:

- a. The bidder shall provide insurance coverage ex-factory until commissioning of project and acceptance for replacement or repair of any part of the consignment damaged due to Natural calamity, theft, vandalism and fire.
- b. It is the responsibility of successful bidder to draw the insurance of system in the name of MEDA from the date of commissioning up to 05 Years period covering the damaged due to Natural calamity, theft, vandalism and fire. The Successful bidder should pay the necessary insurance premium for the said project.
- c. A letter from the insurance company mentioning their inability to provide 05 years of insurance shall be submitted by the bidder, in case one year of insurance is submitted against the work order. In such case, the successful bidder has to ensure that the successive insurance is drawn before the expiry of each insurance.
- d. Insurance has to be drawn in the name of MEDA Kolhapur on behalf of user agency (name of the user agency to be mentioned in insurance policy). Any complaint registered due to Natural calamity, theft, vandalism, fire, by user agency shall be attended by the bidder for settled the claims from user agency.
- e. *In case of any loss encored by the project due to natural calamities, theft, , fire and vandalism the bidder shall be responsible for filing the insurance claim towards loss attained by the project with the respective insurance company and ensure to get compensation*

5. COMPREHENSIVE MAINTENANCE CONTRACT (CMC)

1. The complete and commissioned Solar Street Lights must be guaranteed against any manufacturing/ design/ installation defects for a minimum period of 5 years.
2. PV modules used in Solar Street Lights must be guaranteed for their output peak watt capacity, which should not be less than 90% at the end of 12 years and 80% at the end of 25 years.
3. During the CMC period, MEDA will have all the rights to cross check the performance of the Solar Street Lights. MEDA may carry out the frequent inspections of the Solar Street Lights installed. If during such inspection if any part is not found as per the specified technical parameters, MEDA will take the necessary action. The decision of MEDA in this regard will be final and binding on the manufacturer/supplier.
4. Successful manufacturer/supplier shall have to provide office address and name of technical person with contact who is operating in Kolhapur district/division for timely maintenance of SPV system.
5. During the CMC period, timely cleaning of SPV panels (once in fortnight) of system shall be responsibility of user agency.

MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

6. After site visit manufacturer/supplier shall submit plant visit report to MEDA duly certified by authorized person of the user agency.
7. If any problem occurs in working of Solar Street Lights or its estimated energy saving is not getting achieved then Successful manufacturer/supplier shall attend the system and rectify the problem immediately.
8. After the completion of the CMC period (after 05 Years) User Agency will completely responsible for maintenance and repair etc. of the system.
9. In case if Contractor/ Supplier fail to provide service during the CMC period, the Performance Bank Guarantee and Security Deposit shall be forfeited and Contractor/ Supplier shall be blacklisted.

6. TERMS OF PAYMENT:

- A. 50% of the total cost will be released after successful installation and commissioning of the system duly certified by manufacturer/supplier, Officer of MEDA & authorized person of User Agency along with submission of Joint Inspection Report ,Photos, Tax Invoice, one week energy generation report ,Insurance policy documents (covering Natural calamity, damage, fire, burglary) effective from date of commissioning up to the CMC period i.e. upto 5 Years, Warranty Cards,Manuals,List of Solar Modules numbers,Test Reports, undertaking of CMC for 5 years from date of commissioning of project and receipt of stamp duty paid to Stamp Collector, Kolhapur.
- B. 50% of the total cost shall be released on receipt of two month successful performance report generated automatically through Remote Monitoring System (RMS) or manually which should be duly certified by manufacturer/supplier, Officer of MEDA & authorized person of User Agency and submission of performance bank guarantee of 10 % of total project cost from any Nationalized/Scheduled Commercial Bank valid for period of 5 years from date of commissioning of project.

7. DEDUCTION:-

- i. The TDS at the source will be deducted as per the Govt. rule and regulations.
- ii. MEDA will issue necessary certificates of TDS deduction.
- iii. C / 'D' form will not be issued by MEDA.

8. BILLS TO BE ON PRINTED FORM (TAX INVOICE) :

- Contractor/Supplier/Installer shall submit the Tax Invoice in terms of the 50:50 ratio for basic amount i.e. 70% for goods and 30% for services, respectively by adding applicable GST on renewable energy projects (i.e. 12% GST on Goods and 18% GST on Services).
- Contractor/Supplier/Installer shall submit the two separate Tax Invoices of 50% amount while releasing the 50% and 50% payment respectively(Do not submit the Tax Invoice of 100% amount while releasing the first stage 50% payment).

MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

9. SECURITY DEPOSIT –

- i. A sum of 15,000 /- shall be deposited by the selected manufacturer/supplier as security deposit by online mode in favor of 'Maharashtra Energy Development Agency, Kolhapur on or before issuing of Work Order.
- ii. If the contractor fails to execute the work in given time or terminates the order prematurely then the security deposit will be forfeited and contractor shall be blacklisted and no excuses will be entertained.
- iii. The security deposit will be returned to the contractor without interest after successful commissioning (i.e. all work is completed as per terms and conditions of work order) of system and receipt of two month successful performance report duly signed by user agency, MEDA official and representative of the contractor.

10. PENALTY –

- A penalty of 1/2% of the total project cost shall be imposed on the contractor against a delay of one week in project completion subject to a maximum of up to 10% of the total project cost. In case the penalty exceeds 10% of the total project cost, the given order will be canceled & the security deposit will be forfeited and the Contractor/ Supplier shall be blacklisted.

11. TIME FRAME:

- The successful Manufacturer/supplier will be required to commission the project within 30 Days from the date of issue of work order.

12. EXTENSION :

- If project is not commissioned within the given time frame due to any inevitable reasons then contractor shall seek the time extension for the project at least 07 Days in advance before expiry of project completion period (30 Days) by giving satisfactory reasons for same. **However if the time extension is not taken before the project completion period then the penalty clause of work order shall be effective till the request is applied for the extension with MEDA.**

13. STAMP DUTY :

- The successful bidder has to pay the applicable stamp duty as per Maharashtra Stamp Act clause 10. D. (1) to the Stamp Collector Kolhapur against this work contract and the receipt of same has to be produced along with the first payment invoice to our office.

14. SITE VISIT :

The bidder should visit the site & carryout the survey along with officials of user agency (as mentioned in scope of work) and upload the duly completed site visit report along with photographs (with Lat. And Long.) Indicating that the survey is carried by the bidder as per given format.

MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

15. CHECK LIST OF DOCUMENTS TO BE FURNISHED WITH QUOTATION –

- PAN and GST Details.
- Copy of IT Returns.
- Declaration on company letter head.
- Contractors Information Sheet.
- Annual Turnover Certificate.
- Work Experience Details.
- Site Visit Report.(in format)

We look ahead to seek your sealed quotation on or before 05/02/2024 till 18 Hrs.

Thanking you,

Sd/-

Divisional General Manager
MEDA, Divisional Office, Kolhapur

Encl. :-

1. Contractor Information Sheet.
2. Declaration Format.
3. Annual Turn Over certificate format.
4. Site Survey Form.
5. Technical Specifications of Solar street light

MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

CONTRACTOR'S INFORMATION

| Sr.No | Particulars | |
|-------|---|--|
| 1 | Name of Firm | |
| 2 | Details of Mailing Address | |
| 3 | Firm Status (PSU/Incorporate/Ltd/Pvt.Ltd/LLP/Partnership/Proprietary) | |
| 4 | Name & Designation Of Contact Person | |
| 5 | Contact No. | |
| 6 | E-mail Address for correspondence | |
| 7 | Firm website Address | |
| 8 | Firm registration No/ROC Establish Year of firm | |
| 9 | PAN No. | |
| 10 | GST No. | |
| 11 | Turnover (in Rs.) for FY 2021-22 and 2022-23 | |
| 12 | Skilled manpower | |
| 13 | *Experience in Solar Street Lights | |

Authorised Sign and Stamp

MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

DECLARATION

(On company's letter head)

To,

Divisional General Manager,

Divisional Office Kolhapur

Maharashtra Energy Development Agency

(A Government of Maharashtra Institution)

Address: C. S. No. 249/A – 1/55, E Ward, Mhada Complex, Nagala Park, Near
Zilla Parishad, Kolhapur - 416003

Respected Sir/Madam,

1. We have carefully read and understood all the terms and conditions of the quotation and hereby convey our acceptance to the same.
2. The information / documents furnished along with our offer are true and authentic to the best of my knowledge and belief, We are well aware of the fact that furnishing of any false information/ fabricated document would lead to rejection of our quotation at any stage besides liabilities towards prosecution under appropriate law.
3. We have apprised our self fully about the job to be done during the currency of the period of agreement and also acknowledge bearing consequences to of non-performance or deficiencies in the services on our part.
4. We have no objection, if enquiries are made about the work listed by us.
5. We have not been barred or blacklisted by any Government Agency / Department/ PSU or any such competent Government authority, organization where we have worked. Further, if any of the partners/directors of the organization /firm is blacklisted or having any criminal case against them, our quote shall not be considered. At any later point of time, if this information is found to be false, Divisional General Manager, Divisional Office Kolhapur, Maharashtra Energy Development Agency, may terminate the assigned contract immediately.
6. We have not been found guilty by a court of law in India for fraud, dishonesty or moral turpitude.
7. We agree that the decision of Divisional General Manager, MEDA, Divisional Office Kolhapur, in selection of quotation and shall final and binding to us.

For
(Company Name)

Name of signing authority / Designation / Place / Date

MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

Annual Turnover

(Each Contractor must fill in this form including private/public limited company)

- **Annual Turnover Data for the FY 2021-22,2022-23**
- **Name of Company :**

| Year | Rs in Lacs |
|---------|------------|
| 2021-22 | |
| 2022-23 | |

The information supplied should be the Annual Turnover of the Contractor in terms of the amounts billed to clients for each year for work in progress or completed.

Signature of Applicant

Certified by Applicant's Auditor

(Affix Stamp)

MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

SITE VISIT REPORT

(To be submitted on letterhead of contractor)

Date:

To,
The Divisional General Manager,
Divisional Office Kolhapur,
Maharashtra Energy Development Agency
(A Government of Maharashtra Institution)
Address: C. S. No. 249/A– 1/55, E Ward, Mhada Complex, Nagala Park, Near Zilla
Parishad, Kolhapur – 416003.

Sub. : Site Visit Report for Supply, Erection, Testing and Commissioning Including Five Years Insurance and Comprehensive Operation and Maintenance of Total 06 Meter Height 50W 09 Nos and 12W 01 Nos Solar Street Lights at Various Locations of Grampanchayat Minche Tal. Hatkanangale District Kolhapur in Maharashtra State.

Ref.: Quotation Call No.Date:

Sir,

This has reference to above referred quotation call for Supply, Erection, Testing and Commissioning Including Five Years Insurance and Comprehensive Operation and Maintenance

of Total 06 Meter Height 50W 09 Nos and 12W 01 Nos Solar Street Lights at Various Locations

of Grampanchayat Minche Tal. Hatkanangale District Kolhapur in Maharashtra State.

I / We hereby declare that we have visited the site.

I / We have made my ourselves acquainted with site conditions, approach to site, requirement of area, availability of water, requirement of quotation conditions etc.

I / We have verified the ownership of land for this project belong to respective Grampanchayat.

I / We have verified all details required to execute the project.

I / We have no problems in undertaking the project and complete them in the given time period.

Thanking you

Yours faithfully,

(Signature of Contractor)

Name of Contractor -----

Designation -----

Seal:

Signature of User Agency authorities.

Seal:.....

MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

TECHNICAL SPECIFICATION FOR 06 METER HEIGHT 50W SOLAR STREET LIGHT

| Sr. No | Components | Specification for Solar street light fitting |
|--------|-------------------------|--|
| 1 | PV module | 125 Wp under STC |
| 2 | Battery | Minimum 12.8V, 48 AH capacity Lithium Ferro Phosphate battery. |
| 3 | Light Source | White Light Emitting Diode (W-LED) 50 Watt, W-LED luminaire, dispersed beam, soothing to eyes with the use of proper optics and diffuser. Test report for same should be submitted. (LED + Driver) DC operated confirming to IP65 or above with proper dimmer arrangement Using LEDs which emits ultraviolet light will not be Permitted |
| 4 | Light Out put | The luminaire must use high efficacy W-LED with minimum 140 lumens per watt (and UVfree). [A certificate to be submitted by the System supplier to the Test Lab during certification] |
| 5 | Mounting of light | Luminaire shall be at 6 m above the ground level & mounted properly. Foundation should be properly done to ensuresafety. |
| 6 | Electronics Efficiency | Overall total Efficiency of the Electronics shouldbe Minimum 90% |
| 7 | Duty Cycle | Dusk to dawn: First 6 Hours full light (Min. 24 Lux), rest of the time at lower light (50%, Min. 12 Lux) level. (Higher light output will be preferred) |
| 8 | Autonomy | 3 days or Minimum 36 operating hours perpermissible discharge with fully charged Lithium- Ferro Phosphate Battery. |
| 9 | Ingress Protection – IP | Optical and Control gear compartment - IP 65 / IP66 |
| 10 | Pole | 6 mtr long Octagonal hot dip galvanized Pole of 3 mm Thickness having base plate arrangement to fix with nut& bolt on concrete platform. |
| 11 | Civil Work | As shown in diagram |

MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

1. PV MODULE:

- i. Indigenously manufactured PV module should be used.
- ii. The PV module should have crystalline silicon solar cells and must have a certificate of testing conforming to IEC 61215 Edition II / BIS 14286 from an NABL or IECQ accredited Laboratory.
- iii. The power output of the module under STC should be a minimum of 125Wp.
- iv. The module efficiency should not be less than 14 %.
- v. The terminal box on the module should have a provision for opening it for replacing the cable, if required.
- vi. There should be a Name Plate fixed inside the module which will give:
 - a. Name of the Manufacturer or Distinctive Logo.
 - b. Model Number
 - c. Serial Number
 - d. Year of manufacture
- vii. distinctive serial number starting with NSM will be engraved on the frame of the module or screen printed on the tedlar sheet of the module.

2. BATTERY

- i. Minimum 12.8V, 60 AH capacity Lithium Ferro Phosphate Battery.(LiFePo4)
- ii. Battery pack should have proper 'Battery management System' (BMS) for cell balancing, overcharge and over temperature protection.
- iii. Battery should conform to the latest BIS/ International standards.

3. LIGHT SOURCE

- i. The light source will be a white LED type.
- ii. W-LEDs should not emit ultraviolet light.
- iii. The light output from the white LED light source should be constant throughout the duty cycle.
- iv. The lamps should be housed in an assembly suitable for outdoor use.
- v. The temperature of heat sink should not increase more than 20°C above ambient temperature during the dusk to dawn operation.

4. ELECTRONICS

- i. The total electronic efficiency should be at least 90 %.
- ii. Charge controller should be MPPT Type.
- iii. Electronics should operate at an appropriate voltage suitable for proper charging of the battery.
- iv. The PV module itself should be used to sense the ambient light level for switching ON and OFF the lamp.
- v. The PCB containing the electronics should be capable of solder free installation and replacement.
- vi. Necessary lengths of wires/cables, switches suitable for DC use and fuses should be provided.

5. ELECTRONIC PROTECTIONS

- i. Adequate protection is to be incorporated under "No Load" conditions e.g. when the lamp is removed and the system is switched 'ON'.
- ii. The system should have protection against battery overcharge and deep discharge conditions.
- iii. The System should have protection against short circuit conditions.
- iv. Protection for reverse flow of current through the PV module(s) should be provided.

MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

- v. Adequate protection should be provided against battery reverse polarity.
- vi. Load reconnect should be provided at 80% of the battery capacity status.

6. MECHANICAL COMPONENTS

- I. Pole should be Hot dip galvanized pipe as per IS1161 & IS4736 i.e. Class B.
- II. Pole height 6 m above the ground level. Luminaire shall be at 6 m above the ground level & fixed properly in foundation to ensure safety.
- III. The pole should have the provision to hold the luminaire.
- IV. The battery shall be included in the luminaire enclosure, which should be water proof (IP 65) and corrosion resistant.

7. INDICATORS

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

8. QUALITY AND WARRANTY

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

9. OPERATION and MAINTENANCE MANUAL

An Operation, Instruction and Maintenance Manual, in English and marathi, should be provided with the Solar Street Lighting System. The following minimum details must be provided in the Manual:

- A small write-up (with a block diagram) on Solar Street Lighting System - its components, PV module, battery, electronics and luminaire and expected performance.
- Type, Model number, Voltage & capacity of the battery, used in the system.
- About Charging and Significance of indicators.
- Clear instructions about erection of pole and mounting of PV module (s) and lamp housing assembly on the pole.
- Clear instructions on regular maintenance and troubleshooting of the Solar Street Lighting System.
- DO's and DONT's.
- Name and address of the contact person for repair and maintenance, in case of non-functionality of the solar street lighting system.

MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

Detailed specifications of Foundation are as per details given below.

