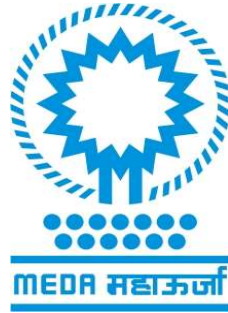


MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

CALL FOR QUOTATION

SUPPLY, INSTALLATION, TESTING, AND COMMISSIONING OF TOTAL 16 NOS SOLAR STREET LIGHTS OF 06 MTR HEIGHT 30 WP CAPACITY AT GRAMPANCHAYAT VASHI TAL. KARVEER DIST KOLHAPUR.

Quotation Ref. No: 2025/DOK/Technical/Desk -1/Quotation/GPVK



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 ZILLAPARISHAD, KOLHAPUR-416003 (M.S)

Contact No. 0231-2680009,

Email: medakolhapur@mahaurja.com

Website (for Tender): [https:// mahatenders.gov.in](https://mahatenders.gov.in)

MAHARASHTRA ENERGY DEVELOPMENT AGENCY, KOLHAPUR

2025/DOK/Technical/Desk -1/Quotation/GPVK

Date: 12/02/2025

Quotation Call

To,
(Contractors/Suppliers)

Sub: SUPPLY, INSTALLATION, TESTING, AND COMMISSIONING OF TOTAL 16 NOS SOLAR STREET LIGHTS OF 06 MTR HEIGHT 30 WP CAPACITY AT GRAMPANCHAYAT VASHI TAL. KARVEER DIST KOLHAPUR.

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

Sr.No.	Particulars	Solar Street light Capacity	Nos	Project Cost (Inclusive of all taxes and charges)
1	Name of Location			
2	Grampanchayat Vashi , Tal.Karveer Dist. Kolhapur	30 Wp/06 Mtr	16	9,92,700/-
3	Date and time for submission of quotation.		From 13/02/2025; 10:00 Hrs to 20/02/2025 18:00 Hrs	
4	Date and time for opening of quotation.		21/02/2025; 10:00 Hrs	
5	Security Deposit		30,000/- (to be deposited online in favor of Maharashtra Energy Development Agency, Kolhapur)	
6	Address for communication and quotation opening		Maharashtra Energy Development Agency, Divisional Office Kolhapur SR.No. 249/A-1/55, E Ward, MHADA complex, Nagala Park, Near Zilla Parishad, Kolhapur-416003	

1. ELIGIBILITY CRITERIA –

The contractor shall be eligible to quote for this work provided fulfilment of following.

1. Shall have a registered firm/company with GST registration.
2. Shall provide brief information in prescribed format (enclosed).
3. Shall not be black listed in any govt. dept. and/or other organizations in and outside the state.

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4. Shall provide documentary proof about having experience of supply, installation, testing and commissioning of minimum cumulative 01 Nos of Solar Highmast OR 08 Nos of Solar Street Lights through Government Scheme or at Government Office /Institute which is installed, commissioned & working successfully.
5. Shall have an annual average turnover of Rs. 20 lakh per year for FY 2022-23 and 2023-24 duly certified by chartered accountant.
6. Shall provide self-attested copy of IT returns for FY 2022-23 and 2023-24 (Assessment year FY 2023-24 and 2024-25).
7. Shall have arrangement of providing after sales service within Kolhapur division.

2. TERMS AND CONDITIONS –

- 1) Location/Site for installation of Solar Street Lights shall be assigned immediately by the user agency to the selected contractor 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 contractor shall provide valid test certificate of Battery and LED from manufacturer.
- 5) The contractor shall provide Solar Modules from the approved Manufacturers which are enlisted in the MNRE's latest ALMM list.
- 6) The solar module should be engraved with name of company supplying the same along with installation date etc.
- 7) The contractor should provide appropriate tools and equipment's to the workmen and ensure that those are in proper working condition and the workmen use the appropriate tools and take precaution "PLEASE NOTE THAT ANY ACCIDENT TO THE WORK MEN / PUBLIC / ANIMALS / PROPERTY BOTH MOVABLE AND IM-MOVABLE SHALL BE ENTIRE AND SOLE RESPONSIBILITY OF THE BIDDER AND ANY PROCEEDING ARISING OUT OF THE SAME SHALL BE AT THE BIDDER'S RISK AND COST, MAHARASHTRA ENERGY DEVELOPMENT AGENCY (MEDA) OR USER AGENCY ALONG WITH THEIR EMPLOYEES WILL NOT BE RESPONSIBLE FOR ANY SUCH INCIDENT".
- 8) The successful contractor shall be responsible for providing insurance for the labour/material etc used in the said work. Also, the successful contractor shall be responsible for making PF/ESIC/Insurance and other necessary government payments to the workers as per the Labour Act.

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- 9) 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.
 - 10) If contractor fails to complete the work then Security Deposit will be forfeited and contractor shall be blacklisted.
 - 11) Contractor shall give training of system operation to a person duly nominated by user agency and same shall be informed to divisional office Kolhapur.
 - 12) The contractor shall successfully complete the project within timeframe set out by the MEDA
 - 13) The contractor shall provide the user manual, warranty card to the user agency and copy of same shall be provided to MEDA Kolhapur.**
 - 14) The contractor shall visit the site and ensure scope of work before submission of quote against the enquiry. In this context, the contractor should submit the Site Visit Report in given prescribed format along with this quote.
 - 15) The work being of limited nature and to seek prompt after sales service the contractor within Kolhapur division will be preferred while allotting the work against the call of quotation. Required proof in this matter need to be submitted by concerned contractor along with quote.
 - 16) The Contractor shall provide the detailed information about Company/firm in attached format (Contractor's Information sheet)
 - 17) **The contractor shall submit their quotation in two different sealed envelopes i.e. First envelop shall contains documents as per the technical eligibility criteria and Second envelop shall contain Financial details (quoted rate).**
 - 18) **The contractor shall mention the subject on each sealed envelope i.e Technical Envelop and Financial Envelop.**
 - 19) **The financial envelop of technically qualified contractor shall only be opened.**
3. **INSURANCE:**
1. It is the responsibility of contractor 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 contractor should pay the necessary insurance premium for the said project.
 2. 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 settling the claims from the user agency.

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3. *In case of any loss encountered by any of the Solar Street Lights due to natural calamities, theft, fire and damage the contractor shall be responsible for filing the insurance claim towards loss attained by the respective Solar Street Lights with the insurance company and ensure to get the compensation for its repair and restoration..*

4. 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. However 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.
2. During the CMC period, MEDA shall 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 contractor.
3. Successful contractor shall have to provide office address and name of technical person with contact who is operating in Kolhapur district/division for timely maintenance of Solar Street Lights.
4. During the CMC period, timely cleaning of SPV panels (once in fortnight) of Solar Street Lights shall be binding on the user agency.
5. After site visit the contractor shall submit site visit report to MEDA which duly certified by authorized person of the concern user agency.
6. If any problem occurs in working of Solar Street Lights then successful contractor shall attend the system and rectify the problem immediately.
7. **Grampanchayat shall be responsible to provide security for the project after commissioning of the Solar Street Lights.**
8. After the completion of the CMC period (after 05 Years) Grampanchayat shall be completely responsible for the maintenance/repair etc. of the Solar Street Lights.
9. In case if contractor fails to provide service during the CMC period, the Performance Bank Guarantee and Security Deposit shall be forfeited and contractor shall be blacklisted.

5. TERMS OF PAYMENT:

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- A. 80% of the total cost shall be released after successful installation and commissioning of the Solar Street Lights duly certified by Contractor, Officer of MEDA & authorized person of Grampanchayat along with submission of Joint Inspection Report ,Photos, Tax Invoice, Insurance policy documents (covering Natural calamity, theft, fire and vandalism) effective from date of commissioning up to the CMC period i.e. for 5 Years, Warranty Cards, Manual, List of Solar Module numbers, Test Reports also undertaking of conducting CMC for 5 years from date of commissioning of system and receipt of Stamp Duty paid to Stamp Collector, Kolhapur and system possession receipt (ताबा पट्टी) from the user agency, need to be submitted by the contractor.
- B. 20% of the total cost shall be released on receipt of two months successful performance report which should be duly certified by Contractor, Officer of MEDA & authorized person of Grampanchayat 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.

Note: The contractor shall note that the payment shall be released to the contractor after funds are received from the DPDC Kolhapur.

6. **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.

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

- The contractor shall submit the Tax Invoice in terms of the 70:30 ratio for basic amount i.e. 70% for goods and 30% for services, respectively by adding applicable GSD on renewable energy projects (i.e. 12% GST on Goods and 18% GST on Services).
- The contractor shall submit the two separate Tax Invoices of 80% and 20% amount while releasing the 80% and 20% payment respectively.(Do not submit the Tax Invoice of 100% amount while releasing the first stage 80% payment)

8. **SECURITY DEPOSIT –**

- i. A sum of **30,000 /-** shall be deposited by the selected contractor as security deposit by online mode in favor of 'Maharashtra Energy Development Agency, Kolhapur on or before issuing of Work Order.
- ii. Failure to comply with the terms of security deposit shall result into cancellation of work order without any further reference to the Contractor and the EMD shall be forfeited.

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- iii. The security deposit shall be liable to be forfeited wholly or partly at the sole discretion of the MEDA, if the Contractor either fails to execute the work of above projects or fails to fulfil the contractual obligations or fails to settle in full his dues to the MEDA.
- iv. If the contractor fails to execute the work in given time or terminates the order prematurely then the security deposit shall be forfeited and contractor shall be blacklisted and no excuses will be entertained.
- v. The security deposit shall 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.

9. 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 shall be blacklisted.

10. TIME FRAME:

- The successful contractor shall be required to commission the project within 30 Days from the date of issue of work order.

11. EXTENSION :

- If Installation of Solar Street Lights is not completed 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 Solar Street Lights installation completion period (30 Days) by giving satisfactory reasons for same. **However if the time extension is not taken before the Solar Street Lights installation completion period then the penalty clause of work order shall be effective till the request is applied for the extension with MEDA.**

12. STAMP DUTY :

- The successful contractor 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 invoice to our office.

13. SITE VISIT :

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

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14. DETAILS OF LOCATIONS

SR.No.	Name of Locations	Nos of Solar Street Lights
1	Yeshitla Mala of Grampanchayat Vashi Tal. Karveer Dist. Kolhapur	01
2	Shelkewadi Road (Popat Kumbhar House) of Grampanchayat Vashi Tal. Karveer Dist. Kolhapur	01
3	Shelkewadi Road (Gopal Patil House) of Grampanchayat Vashi Tal. Karveer Dist. Kolhapur	01
4	Laxmi Mandir (Dhangarwada) of Grampanchayat Vashi Tal. Karveer Dist. Kolhapur	01
5	Near Bhagavan Chapale House of Grampanchayat Vashi Tal. Karveer Dist. Kolhapur	01
6	Belakhali of Grampanchayat Vashi Tal. Karveer Dist. Kolhapur	01
7	Balaji Nagar (Radhanagari road) of Grampanchayat Vashi Tal. Karveer Dist. Kolhapur	01
8	Smashan Bhumi of Grampanchayat Vashi Tal. Karveer Dist. Kolhapur	01
9	Near Murali Patil House of Grampanchayat Vashi Tal. Karveer Dist. Kolhapur	01
10	Near Mahesh More House of Grampanchayat Vashi Tal. Karveer Dist. Kolhapur	01
11	Near Vijay Patil House (Mali Galli) of Grampanchayat Vashi Tal. Karveer Dist. Kolhapur	01
12	Near Vishnu Patil House (Shahunagar) of Grampanchayat Vashi Tal. Karveer Dist. Kolhapur	01
13	Near Dilip Patil House of Grampanchayat Vashi Tal. Karveer Dist. Kolhapur	01
14	Near Vasant Shelke House of Grampanchayat Vashi Tal. Karveer Dist. Kolhapur	01
15	Near Dhondiram Sadu Konde House of Grampanchayat Vashi Tal. Karveer Dist. Kolhapur	01
16	Near Patakadil Galli of Grampanchayat Vashi Tal. Karveer Dist. Kolhapur	01
17	Total	16

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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 20/02/2025 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 Lights.

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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 2022-23 and 2023-24	
12	Skilled manpower	
13	*Experience in Solar Street Lights/Solar Highmast	

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 in and outside the state 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 2022-23,2023-24**
- **Name of Company :**

Year	Rs in Lacs
2022-23	
2023-24	

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, INSTALLATION, TESTING, AND COMMISSIONING OF TOTAL 16 NOS SOLAR STREET LIGHTS OF 06 MTR HEIGHT 30 WP CAPACITY AT GRAMPANCHAYAT VASHI TAL. KARVEER DIST KOLHAPUR.

Ref.: Quotation Call No. 2025/DOK/Technical/Desk -1/Quotation/GPVK Date: 12/02/2025

Sir,

This has reference to above referred call for quotation regarding Supply, Installation, Testing, and Commissioning of Total 16 Nos Solar Street Lights of 06 Mtr Height 30 Wp Capacity at Grampanchayat Vashi Tal. Karveer Dist Kolhapur.

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 and safety issues required as per all quotation conditions etc.

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:.....

TECHNICAL SPECIFICATIONS FOR 30 WATT SOLAR STREET LIGHTS

Sr. No	Components	Specification for Solar street light fitting
1	PV module	150 Wp under STC (MNRE ALMM Approved)
2	Battery	Minimum 12.8V, 60 AH capacity Lithium Ferro Phosphate battery.(LiFePo4)
3	Light Source	White Light Emitting Diode (W-LED) 30 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 122 lumens per watt (and UV free). [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 ensure safety.
6	Electronics Efficiency	Overall total Efficiency of the Electronics should be 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	2 days or Minimum 24 operating hours per permissible 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 Hexagonal hot dip galvanized Pole of 3 mm Thickness having base plate arrangement to fix with nut & bolt on concrete platform.
11	Civil Work	M20 Grade RCC Foundation of 500 MMx500MMx1000MM

TECHNICAL DETAILS:

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

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.
- 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.