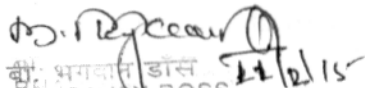


Material Code: HY7802363039
Desc: 36W LED Solar Street Lighting System
PR: 1200018952 dt: 19Jan2015

S NO	Item	Parameters	Suppliers Acceptance YES/NO
1	Light Source	White Light Emitting diode (W- LED) Make: CREE/NICHIA/OSRAM/PHILIPS Supplier shall submit LM-79 & LM-80 test certificate for LED	
2	Solar Module	Minimum 150Wp PV module, <i>MNRE approved solar module</i>	
3	Luminaire	36W LED luminaire of Aluminum Die cast body with lumens minimum 3900, minimum IP 65. Make: Havells/Fortune art/GE/ Philips/ Kripa/ Capart/ Macro/ Adithya Solar /Pasolite/Enerpax/Tata power Supplier shall submit Solar LED Street light as per MNRE spec along with certificate of approval for product.	
4	Battery	Lead Acid tubular battery, 12V-120AH (minimum) @ C/10 Make: Exide/Amara Raja/Luminous/Southern/ Gowell with 3 years warranty. (The supplier shall submit valid test certificate of 12V, 120AH LMLA Battery)	
5	Autonomy	2 days	
6	Duty Cycle	Automatic Dusk to Dawn	
7	Mounting	Swaged M.S pole (Equivalent Designation/Model no: 410SP2) of 7meter overall height (with module bracket for light fitting) confirming to IS 2713:1980 specifications with minimum 1 meter deep inside the concrete, battery bracket at 4.5 meter height, light fitting at 5 meter height	
8	Light Output	LED angle 120 degree minimum. The illumination should be uniform without abrupt variations and soothing on the eye. Higher Light output will be preferred.	
9	Electronics Efficiency	As per MNRE guidelines Minimum 85% or above	
10	SCOPE	Supply comprises Lamp, Pole, Battery, Battery Box of MS sheet 20SWG, Charge control unit with all protection features including lightening protection and charge indications, Solar Module and Module mounting structure, Luminaire Assembly, all powder coated. Adequate connectivity within the system along with cables. Civil works like digging pits and concrete Grouting for the Pole is in vendor's scope. The vendor has to take complete responsibility for Installation, numbering and Commissioning Of solar street Lights in Thogarpally, peddapur villages situated at approx. 35 to 45 km from BHEL, RC Puram. Maintenance during Warranty period of 3 years for street lighting system including battery at free of cost .	
11	MNRE	Bidder must be MNRE — Govt. of India approved vendor Under White LED (W-LED) Based Solar Street Lighting System.	
12	Spares	Following spares to be supplied free of cost in addition to the	


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 Sr. Manager / Electrical (T.A.)
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		100 sets to be included in the scope. a) Luminaire with assembly - 5 nos. b) Electronic card – Solar charge controller unit - 5nos c) Electronic card - LED Driver - 5nos	
13	Warranty	Replace if any faulty Free of cost during warranty period.	
14	General terms and Conditions	1. All equipment shall be suitable for outdoor Conditions like rain and sun for temperature Variations between 5° to 50 °C. 2. The equipment shall be offered for inspection before dispatch at Bidder's works. Only after obtaining clearance in writing from BHEL, the solar streetlights can be shipped. One week prior information has to be given for deputation BHEL personnel for inspection. 3. The vendor is required to submit test certificates of PV modules, Luminaires, battery, Electronic protection etc. along with supply of items. And commitment to submit the same shall be made in technical bid.	
15	Prequalification	1. The bidder must have successfully executed at least one similar work of each 20lakh or at least two similar works of each value 10lakh in supply and installation of solar street lights (18w or above) in Govt / PSU undertakings in last 5years. In this respect necessary purchase orders and performance certificates to be enclosed along with technical bid failing which the offer may not be considered for acceptance. 2. The firm must have a valid ISO certification.	

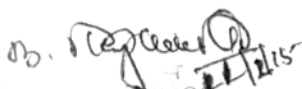
1. WARRANTY:

- a. Entire Solar lighting system (Including battery) – Three years from the date of supply.
- b. PV module – 25 years from the date of installation.

2. OPERATION and MAINTENANCE MANUAL

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

1. Basic principles of Solar Photovoltaic.
2. A small write-up (with a block diagram) on Solar Street Lighting System - its components, PV module, battery, electronics and luminaire and expected performance.
3. Type, Model number, Voltage & capacity of the battery, used in the system.
4. The make, model number, country of origin and technical of W -LEDs used in the lighting System.
5. About Charging and Significance of indicators.
6. Clear instructions about erection of pole and mounting of PV module(s) and lamp housing Assembly on the pole.
7. Clear instructions on regular maintenance and trouble shooting of the Solar Street Lighting System. DO's and DONT's.
8. Name and address of the contact person for repair and maintenance, in case of non-functionality of the solar street lighting system.


 S BHAGAVAN
 Sr Manager

3. Each set consists of the following Components (MAKE & MODEL WISE):

S.No	Item Description	Rating	Make	Qty
1	Solar Module	150Wp-1No or 75Wp-2Nos	SIEM MNRE approved solar module	1 No
2	Battery LMLA @C10 Rating	12V,120AH LMLA Tubular	Exide/Amara Raja/Luminous/Southern/Gowell	1 No
3	Mounting structure with suitable angles with hardware	Suitable for 150Wp panel	M.S.with painting	1 set
4	Cables	Suitable for Electrical/Solar	ISI brand any one	As per reqmt.
5	Powder Coated Battery Box	Suitable for 12V battery	M.S. With Powder coated	1 No
6	LED Luminary Make	36Watts	Havells/Fortune art/ GE/ Philips/ Kripa/ Capart/ Adithya Solar / Pasolite/Macro /Enerpax/Tata power	1 No
7	LED Make(Inside Luminaire)	Minimum 0.5watt and Maximum 1.2Watt	Osram/Cree/Philips/ Nichia	As Required
8	M.S. Swaged Pole	With Approx dimensions as: Overall Length -7.0 Mtrs Bottom: (ODxThick)114mm x 4.5mm Middle: 88.9mm x 4.05mm Top: 76.1mm x 3.25mm	Sawaria/D.T	1 No

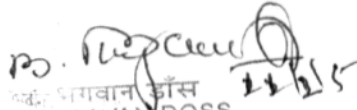
4. INSTALLATION:

The installation of Solar Power Street light involves the following steps

- ✚ Dig the hole minimum 1meter
- ✚ Civil foundation job with concrete
- ✚ Assembly and fixing of solar module on top of M.S.Pole with south face. (The directions North-South to be made for fixing the SPV module structure).
- ✚ Assembly and fixing LED luminary
- ✚ Installation and commissioning of the Battery
- ✚ Electrical connections


5.MAINTENANCE FREE OF COST:

- ✚ Fill the distilled water every 6-9 months, when required during warranty period.
- ✚ Visual inspection of the modules, electrical connections for corrosion and looseness, state of charge of battery during the above visit.


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6. High power and high efficient LED's suitable for following features shall be used:

- a. The efficiency of the LED lamps at 110°C Junction temperature shall be more than 80%
- b. The working life of the lamp at junction temperature of 110°C for 350mA current shall be more than 50,000 hours of accumulative operation and shall be suitable continuous operation of 12 hours per day.
- c. Adequate heat sink with proper thermal management shall provide.
- d. Color temperature of the proposed white color LED shall be 6500K.
- e. Minimum view angle of the LED shall be 120°
- f. The output of LED shall be more than 100 lumen per watt at minimal operating current and shall ensure guaranteed operation life **50,000** burning hours with controlled junction temperature of 110°C.
- g. Efficiency of driver electronics shall be more than 85%.
- h. Power factor of complete fitting shall be more than 0.95.
- i. Thermal management shall be in such a way that LED junction temperature shall not go beyond 80°C.
- j. LED fixing arrangement – Mounted on metal core PCB fixed to aluminum die cast body.
- k. LED Fixture: Aluminum fixture with acrylic cover with IP 65 protection.
- l. LED shall be OSRAM/Cree/Nichia/Philips


बा. भगवान डॉस
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वरिष्ठ प्रबंधक / विद्युत (Senior Manager / Electrical)
7/2/15