



THE ASSAM GAZETTE

অসাধাৰণ

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GOVERNMENT OF ASSAM

ORDERS BY THE GOVERNOR

PANCHAYAT AND RURAL DEVELOPMENT DEPARTMENT

NOTIFICATION

The 30th April, 2020

Guideline for Solar Street light in Rural areas

BACKGROUND

No.PDA.56/2020/35.- At present days context street lighting system is considered as basic needs of the rural people. Street lighting provides a number of important benefits. It can be used to promote security in rural areas and to increase the quality of life. Street lighting also improves safety for drivers, riders, and pedestrians. Government of Assam is aiming to improve living conditions of rural communities by installation of solar street light at villages under the Gram Panchayats of Assam. It is driven by the fact that nearly many villages has little or no access to grid based electricity for street lighting, and illuminating other outdoor lighting.

1. Aim and Objective of this guideline on Solar street light in rural areas: Presently, Panchayati Raj Institutions has taken initiative on installation of solar street light in different tiers of Panchayati Raj Institutions i.e. Gaon Panchayats, Anchalik Panchayats & Zilla Parishads for affordable and reliable solar power with LEDs in villages. It is increasing benefit to the people of rural areas through making the rural business activity at night and contributing in economic enhancement and ease of living, promote security in rural areas and increasing the quality of life, safe movement at night, Wild elephant hazards could also be addressed by installing street light at vulnerable villages.

Gram Panchayats of Assam are installing the standalone solar street lighting system from their available fund in the villages. On the other hand as the Gram Panchayats do not have any technical expertise for selection of quality materials to be installed or being installed by the panchayats, it is observed that the present standalone solar street lighting system installed by the different Panchayats is not uniform in regards to quality standard and price. So, the main objective of this guideline is to guide the panchayats to procure the quality materials and maintain the uniformity in price.

2. Technical Specification of Solar LED street light : To select the specification of Solar Street light to be installed in the villages under the Gram panchayats a State level Quality control & Co-ordination committee will be formed. The committee will ensure and select the quality of materials procured by the Gram panchayats .

Recent advances in LED lighting have brought very promising opportunities for application in street lighting in Rural areas.

A basic solar powered LED street light system components are:

1. Solar Panel or Photovoltaic Module
2. Lighting Fixture – LED lamp set
3. Rechargeable Deep Cycle Battery (Usually Li-Ion battery)
4. Solar Charge Controller
5. Light Pole

The operation of the LED bulb is controlled by a control circuit either by using sensors such as Light Dependent Resistor (LDR) or voltage or current sensor. The solar panel is mounted at the top of the pole to minimize the possibility of any shading on the panels.

The model proposed with a design which have minimum numbers of components so that it is easier for transportation and faster installation under this Panchayati Raj Institutions initiative. This will be a solar street light, with PV Module, Battery (Li Pro4), comes with, a 30 W solar panel, LED minimum 1150 lumen output. The solar panel which can be installed separate from LED luminary with IP65 rating protection for outdoor application. The solar panel should be able to mount independently; it can be aligned to exact south facing direction, for best performance. The solar panel is to be mounted at the top of the pole to minimize the possibility of any shading on the panels, so that the solar light could have a mounting bracket compatible with standard poles allowing for easier installation.

The office of the Commissioner, Panchayat and Rural Development Department, Govt. of Assam has collected the technical feasibility and approved price of two type of standalone Solar street light(all in one) from Office of the Chief Engineer PWD.

The **Type 1** - Solar street light (All in One) of brand approved by MNRE which includes Supplying, Erection, Installation, Testing and Commissioning with Octagonal Galvanized Pole of height of 6 M, 30 Watt LED light including the RCC foundation as per site requirement, laying of 6 SWG G.I. earth from Earth Electrode (below G.L.).

The **Type 2** - Solar Mini Mast of 9 M (Octagonal Pole HD Galvanized) with all in one LED Light System of brand approved by MNRE which includes Supplying, Erection, Installation, Testing and

Commissioning of Solar Mini Mast, Octagonal Pole HD Galvanized of height of 9 M, 4 (Four) nos. 40 W LED Flood light of brand approved by MNRE including the RCC foundation as per site requirement, with earth electrode G.I. strips and Lighting Arrestor etc.

3. **The process of procurement Solar Street Light** : The installation of Solar Street Light will be taken up by the Gram Panchayat and the fund from Central & State Finance Commission will be used. The installation of the same will be done in selected location through a construction committee at Gram panchayat / to be constituted as stated below:

Chairman of the committee should be selected by the user group of the scheme by way of resolution or by Gaon Sabha; but the Chairman can not be a PRI representative.

Member Secretary	: Gaon Panchayat Secretary
Member	: Concerned Junior Engineer
Member	: Concerned GP President
Member	: Concerned AP Member of the GP
Member	: Concerned Ward Member of the GP

- i. The construction committee will be constituted by Chief Executive Officer, Zilla Parishad for schemes above Rs.10 lakh and BDO will constitute the construction committee for schemes Rs.10 lakh or below.
- ii. The construction committee will get the Plan and estimate prepared through the concerned AE/JE and submit the proposal for Administrative approval and the Technical sanction to the competent authority as per delegation of power. The administrative approval will be accorded by BDO of the AP for the schemes of Rs.10 lakh or less and by CEO, ZP for the schemes of more than Rs.10 lakh.
- iii. After receiving the Administrative Approval and Technical Sanction, the construction committee will mobilize the men, material and machines.
- iv. The President/GP Secretary shall release 25% of the estimated fund as 1st Installment to the construction committee. The construction committee shall immediately start the work. They shall purchase the solar street light directly from the vendor. 50% of the fund will be released as 2nd installment on satisfactory progress of the work. Remaining 25% will be released on the completion of work. As per estimate on submission of completion report and utilization certificate to BDO/CEO, ZP
- v. No contractor shall be engaged for implementation of work whatsoever.
- vi. The member Secretary and the Chairman of the construction committee and the Gaon Panchayat Coordinator (GPC) will be personally responsible for maintenance of all records relating to the scheme viz. maintenance of Cash Book, Transaction through Bank, MB/ MR/ Photograph/ Bill & Voucher etc.
- vii. The Member of the construction committee will regularly visit the work sites and monitor progress of the work as per prescribed procedures and specification.
- viii. On completion of work, the construction committee will quickly finalized the accounts for that work and shall furnish a work completion report and

utilization certificate to the concerned authority within 30 days / 45 days as may be fixed by the CEO, Zilla Parishad.

- ix. The construction committee shall be responsible for erection of signboard of the schemes.
- x. Photographs and contact nos. of non-officials members shall be kept.
- xi. Pre work and post work photographs of the schemes shall be maintained by the construction committee.
- xii. Fund shall be kept in the joint account of Chairman and Member secretary of the construction committee.
- xiii. All expenditure shall be made from this account by account pay cheque only.

4. **Quality control & transparency:** To ensure the quality & transparency in installation of Solar Street light in the villages under the Gram panchayat a State level Quality control & Co-ordination committee will be formed. The committee will ensure and select the quality materials and maintain the uniformity in price during procurement of Solar Street light by the Gram panchayat through competitive bidding. The price realised through bidding process should include the cost of AMC/CMC for a period of atleast 5 years.

This will be the committee for selection of brand and vendor for installation of Solar Street Light and maintenance procured by the Gram Panchayat within the approved unit cost. The structure of the committee is as follows:

- Chairman : Commissioner Panchayat & Rural Development
- Members : i) Joint Secretary Rural Development (Programme)
ii) Director SIPRD, Assam
iii) Senior Finance & Account Officer, CPRD
iv) Joint, Director (T) / Sr. Technical Consultant, SIPRD
- Member Secretary : Joint Director (dealing with FC fund)

For maintaining the uniformity in quality and quantity of solar street light to be installed at Gaon Panchayat, the Commissioner, Panchayat & Rural Development will empanel the vendors for supplying and installation of solar street light as specified at Para – 6 of this guidelines. **Copy of the supply order for installation of solar street light to be issued by the Gaon Panchayats to the supplier will be endorsed to the CEO, Zilla Parishad and Commissioner, Panchayat & Rural Development for smooth monitoring from district and state level.** The implementation and payment against the supply and installation of the solar street light will be made at Gaon Panchayat as per the guidelines issued for Central Finance Commission, State Finance Commission from Government and as stated at Para – 3 above.

5. **Selection of location for installation in Rural area :** Panchayat will select the location for installation of solar street light in villages covering 2197 GPs of the state considering the following locations to be covered:

- I. Rural micro growth centre or chowk.
- II. Village market areas
- III. Village roads
- IV. Village recreation park

6. Fund and Unit cost of a Solar street light: The expenditure for procurement and installation of Solar Street light will be done from state and central finance commission grant. The office of the Commissioner, Panchayat and Rural Development Department, Govt. of Assam has collected the price of two types of standalone Solar street light (all in one) vetted from Office of the Chief Engineer PWD, Assam.

Type 1: Solar street light (All in One) in 6 M (octagonal pole) height pole and approved unit cost is **Rs 53906.00** . The detail Plan and estimates is at Annexure -1.

Type 2: Solar Mini Mast of 9 M (Octagonal Pole HD Galvanized) with all in one LED Light System and approved cost is Rs **352915.00**. The detail Plan and estimates is at Annexure -2.

The office of the Gram Panchayat will ensure the installation, Testing & Commissioning of solar street light at site.

The details of the two type of Solar street light is as bellow :

Type 1: Installation of Solar street light (All in One) in 6 M (octagonal pole) height pole :

Sl. No.		Unit	Qty.
1-A	Supplying, Erection, Installation, Testing and Commissioning of Solar Street Light (All in One) of Octagonal Galvanized Pole of height of 6 M, 30 Watt LED light of brand approved by MNRE including the RCC foundation as per site requirement as per specification as mentioned at below.		
	30 w all-in-one standard		
	Octagonal Pole of height 6 M		
	RCC foundation for Pole	Job	1
2/22.8	Supply, Installation & testing of G.I. earth station with perforated 50 mm dia. And 3.00 Metre long heavy duty G.I. pipe with necessary 50 mm dia. G.I. Fitting such as Socket, Tee, elbow, nipple and 65 mmx50 mm G.I. reducing socket for funnel including locking arrangement 300 mmx300 mmx6 mm hinged cover C.I. earth plate complete with digging of earth pit, construction of brick chamber and plastering of both inner & outer surface of wall as specified and directed by the deptt.	Each	1
3/22.12	Extra for using salt (5 K and Charcoal (64 K in pipe Earth Station pit to provide low impedance ground in location of high soil resistivity as and when required and specified by the Deptt.	Each	1
4/22.15	Supplying & laying of 6 SWG G.I. earth from Earth Electrode (below G.L.) to electrical switch gears of electrical machineries including making necessary connection as approved and specified and directed by the deptt.	Mtr	8
	(N.B:- 5 (Five) Years Free maintenance with replacement warranty excluding 1 year defected liabilities)		

Type 2: Name of Work:- Installation of Solar Mini Mast of 9 M (Octagonal Pole HD Galvanized) with all in one LED Light System.

SI No	Item	Unit	Qty
1-A	Supplying, Erection, Installation, Testing and Commissioning of Solar Mini Mast of Octagonal Pole HD Galvanized of height of 9 M, 4 (Four) nos. 40 W LED Flood light of brand approved by MNRE including the RCC foundation as per site requirement as per specification as mentioned at below.		
	Light Source - 40 W (Solar BSZSL 40 W or eqvt.)		
	Solar Panel – 48 W + 4 W (Mono)		
	All in One Solar System		
	PIR Sensor		
	IP - 65		
	LED Lamp Life - 50000 Hrs		
	Battery (Li-ion) – 11.1 v 30 AH		
	Charge Controller - MPPT		
	Charge Controller efficiency > 90%		
	CRI > 70		
	Efficacy > 120 lm / watt		
	Visual Angle 120 deg		
	Colour Temperature 6000k – 6500k		
	AC / DC Cable		
	Autonomy 2 Days		
	Charging Time 1 Day		
	Working Temperature – 10 deg centigrade to 55 deg centigrade		
	Pole Dia 50 mm to 100 mm	Job	1
2 –A	Construction of Mini High Mast Foundation for erection of Mast as specified and directed by the department. (Base on SOR 2013-14, PWD, Civil)	Job	1
3/22.1	Supply, Installation & testing of Copper Plate earth station with 600 mmx600 mmx3 copper earth plate with necessary 40 mm dia dia. G.I. medium duty watering pipe with G.I. Fittings such as Socket, Tee, elbow, nipple and 50 mmx40 mm G.I. reducing socket for funnel including locking arrangement 300 mmx300 mmx6 mm C.I. hinged cover plate complete with digging of earth pit, construction of brick chamber and plastering of both inner & outer surface of wall as specified and directed by the deptt.	Each	1
4/22.13	Extra for using salt (5 K and Charcoal (96 K in G.I./Copper plate Earth Station pit to provide low impedance ground in location of high soil resistivity as and when required and specified by the Deptt.	Each	1
5/22.28	Supply, Fitting & Fixing 20 mmx5 mm G.I. strips drawn on vertically or horizontally on building wall/ parapet wall in surface system complete with supply of G.I. Nuts & Bolts, Screws etc including riveting, soldering and making connection as approved by the Deptt. with earth electrode G.I. strips and Lighting Arrestor etc. as specified and directed by the deptt.	Metre.	8
	(N.B:- 5 (Five) Years Free maintenance with replacement warranty excluding 1 year defected liabilities)		

7. **Service and Maintenance :**

- (a) The Panchayat and Rural Development Department, Assam will establish a proper system locally in each GPs for maintenance & service of Solar Street Light during post installation. **Training to the beneficiary users will be arranged by the bidders / suppliers and in the process one Technician will be trained from beneficiary user per block who will be capacitated to undertake the necessary maintenance work as Technician.** As the Solar street light will be installed in place like growth centre of village, market place & rural road each GPs, the concern GPs will raise revenue from the users of the Solar street light and utilize for maintenance as stated below .

(b) Following are the service required in post installation of Solar Street Light

Since these lights are wireless and costly, the risk of theft is high compared to regular street light, community ownership should be developed.

- Frequent checking after extreme weather conditions- The villages of the state some time face extreme weather conditions like hail storm, flood or dust. There are chances of moisture getting accumulated horizontal PV-panels leading to reduced or full stoppage of energy production.
- Replacement of batteries- Like any other components, rechargeable batteries also get exhausted they must be replaced a few times within the lifetime of the fixtures. The Replacement of batteries of this light should be done by GP and necessary provision of fund will be at GP.
- For the maintenance as stated above GP will form a GP level user group headed by GP president.

8. **Impact of the project:** Govt. of Assam targets for providing basic need of the villagers by providing solar street light in the rural areas of the state . The installation of solar street light in the rural areas will boost economic activity and social bonding. We can say that the advantage of installation, intelligent and connected solar streetlights asve not only trench costs to create a grid, but also enegy costs and the subscription to an energy distributor.

Solar Street lighting will provides a number of benefits such as reductions in on street accidents and crime, amenity (a feeling of warmth and security), streetscape enhancements and stimulation of the night-time trade. In assam, government is aiming to improve living conditions of rulral communities by connecting them to clean energy as part the project. The will be delivering affordable and reliable solar power and LEDs to rural villages. So, it will benefit the people of rural areas in economic upliftment and ease of living. The solar LED street lighting system would result improved health and living conditions for the local population. So, it will benefit the people of rural areas in a great extent.

The following are the main **Advantages** behind opting for **a Solar Street Lights.**

9. **Environmental friendly-** Use of solar lights can play a major role in reducing the carbon footprints which are created from non-renewable sources. When the use of solar and other renewable energy will increase then only the problem of exhaustion will decrease from the planet.

10. **Cost effective-** As these lights are dependent on the sun, it will be save from paying money to the electricity provider every month. Initially it might seem a bit expensive but gradually it will cover up the costs within a few months and give long-term benefits.
11. **Imperishable source-** Since solar energy is **unlimited**; the rural users will never be away from utilizing it, if they are installed in a place where there is sunlight.
12. **Less maintenance-** After installation it will be free from worrying about the maintenance of these lights. Apart from cleaning and doing few check-ups there isn't much to do to ensure its longevity.
13. **Available in wide ranges-** Solar lighting techniques have developed over the years. Today there are wide choice of solar lights with different sizes, types, styles, features etc. These ranges are not only to suit the functional purpose but look wise also they have improved a lot.

J. B. EKKA,

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Panchayat and Rural development Department.