



**Abstract**

Schemes – State Scheme – Energisation of Street Lights with Solar Energy – Implementation of the scheme – Sanction of funds of Rs.52.50 crores and Guidelines prescribed – Orders – Issued.

**Rural Development & Panchayat Raj (SGS.3) Department**

**G.O.(Ms.) No.91**

**088799**

Dated: 17.11.2011  
Read:

From the Commissioner of Rural Development and Panchayat Raj, Letter No.47349/2011/PR.III-2, dated 28.07.2011.

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**ORDER:**

His Excellency the Governor of Tamil Nadu in his address in the Tamil Nadu Legislative Assembly on 03.06.2011, among other has announced that Government will initiate steps to energize street lights with solar energy on an experimental basis.

2. The Commissioner of Rural Development and Panchayat Raj in the letter read above has stated that 17,42,804 street lights were distributed in 12,618 Village Panchayats as detailed below:-

Tube Light	15,19,915
Sodium Vapour Lamp	1,19,939
CFL	76,427
Incandescent Bulbs	18,789
Mercury Vapour Lamp	7,734
Total	17,42,804

The Village Panchayats are maintaining the functioning of street lights. The operation and maintenance expenditure such as repair and replacement of lights, chokes and electricity charges are being met from the State Finance Commission Grant, 13<sup>th</sup> Finance Commission Grant and from the own funds of Village Panchayats. He

has further stated that in connection with the Governor's address the existing street lights in the Village Panchayats may be replaced with Solar powered Street lights with an objective of reduction in the maintenance expenditure and promotes the concept of renewable energy in rural areas. Since, the programme is to be implemented in Village Panchayats on an experimental basis 1,00,000 street lights in 1000 Village Panchayats may be taken up for replacement with Solar Power over a period of 5 years upto 2016. For the year 2011-12, 20,000 street lights may be taken up for replacement with solar power under this scheme. He has also stated that the proposed cost pattern for the replacement of the existing street lights with solar power has been arrived at in consultation with the Tamil Nadu Energy Development Agency (TEDA) as detailed below:

Sl.No.	Category	Cost of Light / Power plants (in Rs.)		
		Government of India subsidy	State Contribution	Total
1.	Individual / Stand alone Solar Street Light	6,000	24,000	30,000
2.	500 W Solar power plant for every 10 street lights	40,500	2,09,500	2,50,000

Estimate for replacement for existing 20,000 street lights with Solar Power has been arrived at as detailed below:

1.	Cost for 1,000 individual / stand alone street lights with solar power @ Rs.30,000 X 1,000	Rs.3 crores
2.	Cost for 500 W Solar power plant (1900 units at the rate of 10 lights per unit for 19,000 lights) (1900 X Rs.2.50,000)	Rs.47.5 crores
3.	Total cost for energisation of 20,000 street lights (I + II)	Rs.50.50 crores
	TEDA Service Charge @ 8%	Rs.4.00 crores
	Total State Government fund	Rs.54.50 crores

3. The Commissioner of Rural Development and Panchayat Raj has requested the Government to issue necessary orders formulating a new scheme called "Energisation of Street lights with Solar power" and sanction of funds of Rs.54.50 crores for energisation of 20,000 street lights with solar power in Village Panchayats for the year 2011-12 and approve the draft guidelines. He has also requested the Government to authorize him to make any change/modification in the guidelines if necessary, in consultation with the Government.

4. The Government have examined the proposal of the Commissioner of Rural Development and Panchayat Raj in detail and issue the following orders:-

- (i) The State Scheme of street lights with solar power shall be called as "Energisation of Street Lights with Solar Power Scheme'.
- (ii) Under this State scheme on an experimental basis 1,00,000 Street lights in 1000 Village Panchayats shall be taken up for replacement with solar power over a period of 5 years upto 2016.
- (iii) The replacement of existing street lights' with solar power shall be done in consultation with the Tamil Nadu Energy Development Agency (TEDA).
- (iv) Sanction is accorded for a sum of Rs.52.50 crores (Rupees fifty two crores and fifty lakhs only) for energisation of 20,000 street lights with solar power in Village Panchayats during the financial year 2011-12. The funds for this scheme may be provided as summed up below:

From concerned Village Panchayats : Rs.21.1025 crores

From Infrastructure Gap Filling Fund : Rs.21.1025 crores

From Govt. Of India subsidy : Rs. 8.2950 crores  
(borne by Government of  
Tamil Nadu remitted later)

Total : Rs.50.5 crores.

and Rs.2 crores (4%) as service charges to TEDA from State Government fund.

- (v) The Tamil Nadu Energy Development Agency (TEDA) shall be the implementing agency.
- (vi) The Tamil Nadu Energy Development Agency shall be paid a service charges at the rate of 4% of the total cost for the supply of solar street lights / installation of solar power plants. The Commissioner of Rural Development and Panchayat Raj will disburse the funds to the Tamil Nadu Energy Development Agency.
- (vii) TEDA will recruit an Assistant Engineer and Junior Assistant-cum-Computer Operator on a consolidated pay on a two years contract and place them in District Rural Development Agency under Project Director/Collector in the District where the scheme is rolled out in phased manner.

(viii) At the District level, the Collector and the Project Director, District Rural Development Agency will monitor the implementation of the scheme. The TEDA will be the monitoring agency at the state level.

(ix) The detailed guidelines for the implementation of the scheme are annexed to this order.

5) This order issues with the concurrence of the Energy Department vide its U.O.No.9262/C2/11, dated 5.11.2011 and Finance Department vide its U.O.No.57856/Finance (RD)/2011, dated 16.11.2011.

(By Order of the Governor)

N.S. PALANIAPPAN,  
Principal Secretary to Government

To

✓ The Commissioner of Rural Development and Panchayat Raj, Chennai-15.  
The Principal Secretary to Government, Energy Department, Chennai-9.  
The Managing Director, Tamil Nadu Energy Development Agency, Chennai-6  
The Secretary to Government, Information Technology Department, Chennai-9.  
.All District Collectors. (except Chennai)  
All Project Directors, District Rural Development Agencies (Thro' Commissioner of Rural Development and Panchayat Raj, Chennai-15)  
The Pay and Accounts Officer (South), Chennai-5.

**Copy to:**

The Additional Chief Secretary / Secretary-I to the Hon'ble Chief Minister, Chennai-9.  
The Senior Personal Assistant to Hon'ble Minister for Finance, Chennai-9.  
The Senior Personal Assistant to Hon'ble Minister for Electricity & Prohibition and Excise, Chennai-9.  
The Senior Personal Assistant to the Hon'ble Minister for Municipal Administration & Rural Development, Chennai-9.  
Finance (BG.I/BG.II/R.D/FC.IV) Department, Chennai-9.  
The Accountant General, Chennai-9/18/35.  
All District Treasury Officers.

//Forwarded by Order//

*J. S. Srinivasan*  
17.11.11  
Section Officer

**ANNEXURE to G.O.(Ms.) No.91, RD& PR (SGS1) Department, Dated 17.11.2011**

**GUIDELINES FOR ENERGISATION OF STREET LIGHTS WITH SOLAR POWER**

**1. Allocation for the year 2011-12 :**

In the year 2011-12, it is proposed to replace 20,000 street lights in various Village Panchayats with Solar Photovoltaic (SPV) lights. The District-wise allocation will be done by the Commissioner of Rural Development and Panchayat Raj.

**2. Allotment to the Village Panchayats :**

The District Collector and Chairman, District Rural Development Agency will select the Village Panchayats and number of lights in each village where the conversion of street lights into solar lights is required.

**3. Selection of locations/areas for replacement of street lights :**

A Committee consisting of Block Development Officer (Village Panchayat), AE/JE of TNEB of the Block area and the Panchayat President of the concerned Village Panchayat should identify the specific street light / location in which lights are to be replaced with solar power after taking into account of the following points. The TNEB should consult TEDA with regard to the replacement of the existing Street lights with SPV lights for both the stand alone cases and for the street lights which involve centralized power plant.

- i) Replacement of incandescent lights should be given top priority. Individual lights in remote locations of the habitations should be given priority.
- ii) Street lights located in the far flung localities and forest areas should be given priority for replacement.
- iii) Habitations affected by chronic voltage problem should be given priority.
- iv) Street Lights located in Burial Ground, pathway to burial ground must be given priority
- v) Habitations taken up under 'THAI' scheme shall be given priority.
- vi) Stand alone SPV street lighting systems with 20 W LED will be erected in between the existing street lights that are scattered at remote locations.
- vii) A row of existing street lights will be energised through centralised Solar PV power plants after replacing the existing incandescent lamps/ tube lights by 20 W LED lights. The existing TNEB distribution line will be used for distribution of solar power and grid supply will be kept as backup with automatic change over provision.

- viii) New street lights proposed by Rural Development and Panchayat Raj Department under their regular programme for the year 2011-12 will be powered through solar with 20 W LED either as stand-alone SPV lighting systems or through centralized solar PV power, based on the proximity of locations. Centralized solar power plant network within 25m radius of the TNEB grid will be backed up by grid supply with automatic changeover provision.
- ix) The street lights will be automatically energized through solar PV systems from dusk to dawn (6pm to 6 am) using light sensors. The street lights will also be timed to automatically dim down to 6W capacity from 10pm to 6 am to save power
- x) The location of Street Lights shall be identified by Rural Development and Panchayat Raj Department in co-ordination with Tamil Nadu Electricity Board and the list will be handed over to TEDA for installation.
- xi) The Village Panchayat shall provide a 30 sq.ft. land for construction of a room by the approved contractors to install the battery, inverter, etc. required for the solar plant. Rural Development and Panchayat Raj Department will coordinate this requirement along with TEDA. This does not ensure transfer of land to TEDA, but only making Panchayat vested lands available for this purpose.
- xii) The Village Panchayat shall also provide 80 sq.ft. of area either on the roof top of an existing building for installation of solar panels. If suitable building is not available, 80 sq.ft. area of open space should be provided by the Village Panchayat. This does not ensure transfer of land to TEDA, but only making Panchayat vested lands available for this purpose.

#### **4. Implementation Agency :**

Tamil Nadu Energy Development Agency will be the implementing agency. The TEDA will invite Tenders at State level and finalise the panel of companies for the supply of solar street lights/installation of solar power plants.

##### **a) Street lighting through stand alone systems**

It is proposed to install SPV stand alone street lighting systems with 20 W LED for locations where the existing street light poles / newly proposed street light locations are quite far from each other. For eg: Burial ground and pathway to burial ground lighting, remote habitations etc., Stand alone SPV street lighting system will be erected in between the existing street lights. The cost estimate per stand alone SPV street lighting system is Rs. 30,000 which is a rough estimate. It is estimated that 1000 stand alone street lights will be installed.

**b) Installation of 500 W Centralized Solar Photo Voltaic power plant towards powering a cluster of street lights**

In respect of new street lights proposed in a row, 500 W centralized SPV power plant will be established to energise 10 streetlights with LEDs of capacity 20 W each from dusk to dawn. The SPV array converts the solar light energy available during the day time in to DC electrical power which is stored in battery. The DC power from the battery is converted to AC through the inverter for energizing the street lights from dusk to dawn. A mini grid will be established for distribution of power to the street lights. It is estimated that 1000 Street lights will be installed in this category.

In case of the existing street lights selected in a row, the available TNEB distribution line will be used for supply of solar power from the 500 W centralized SPV power plants and grid supply will be kept as backup with automatic changeover option. The existing incandescent lamps/ tube lights will be replaced with 20 W LED lights and the old streetlight lamps will be handed back to Rural Development and Panchayat Raj Department. 10 street lights can be connected to 500 W SPV power plant. It is estimated that 18,000 Street lights will be installed in this category.

A manual change over switch will also be provided to disconnect the solar power during maintenance by TNEB personnel. Necessary warning boards will be kept at the transformers and also painted on poles where there is dual supply. AC-DC voltage conversion has not been considered since DC transmission leads to poor voltage level for long distance applications.

Around 80 sq.feet area will be required for erection of 500 W SPV panels. Roof top of panchayat office / School /Govt. buildings etc may be used for erection of SPV panels. If no such buildings are available in nearby area, the SPV panels may be erected on a structure at certain height from the ground level. Also around 30 sq.ft area will be required for construction of room for housing power conditioning unit and batteries. The area required for installation of SPV power plants has to be provided by the respective Panchayats/Rural Development and Panchayat Raj Department. This does not ensure transfer of land to TEDA, but only making Panchayat vested lands available for this purpose.

**5. Issue of work order:**

After finalization of tender and identification of company / Agency for execution of works, work order will be issued by TEDA and agreement should be executed for completion of works within the time limit and for maintenance of lights up to certain period as per the existing norms.

## 6. Execution of works :

The erection and commissioning agencies shall also be responsible for two years warranty with additional 1/2/3 years comprehensive maintenance contract. TEDA will station one AEE/AE and a Junior Assistant cum Computer Operator at each District Rural Development Agency who will liaise with Project Director, District Rural Development Agency or day to day coordination and supervision. Project Director, District Rural Development Agency shall provide TEDA a room in District Rural Development Agency for housing TEDA office.

### i. Quality Control and Inspection

TEDA will engage Project Management Consultants and a third party inspection agency, whose responsibility will be to ensure that all the materials used and the workmanship conform to the prescribed specifications. The inspection will cover quality checks of major materials at pre-shipment stage at the vendor's outlet. The Project Management Consultants will ensure 100% of the lights installed are inspected.

In case, quality check reveals 'unsatisfactory' work, the implementing agency (TEDA) shall ensure that the contractor replace the material or rectifies the workmanship (as the case may be) within the time period stipulated. All works rated 'unsatisfactory' shall be re-inspected after a rectification report has been received from the contractor. Funds will be released to the commissioning agencies only after receiving successful inspection reports. TEDA will designate an appropriate senior officer as incharge of the Monitoring system.

The Village Panchayat will take over the solar powered street lights which have been installed, after verifying the functioning for a period of 3 days. If not, the Village Panchayat will inform to TEDA through Block / District Administration for proper rectification of the system.

### ii. Maintenance of the System

As part of the tender the commissioning agencies shall be responsible to train the Panchayat Secretary as well as 4 Self Help Group members in each Panchayat to do regular preventive and routine maintenance.

### iii. State Empowered Committee

State Empowered Committee constituted by the State under the Chairmanship of Chief Secretary, Government of Tamil Nadu with following members will sanction the projects, including revised cost estimates, monitor and review the implementation of the scheme in addition to issuing necessary guidelines from time to time for effective implementation of the scheme. This Committee will also approve the technical



specifications and the tender documents, and will recommend the final bid price to the appropriate authority for acceptance.

Chairman and Managing Director, TEDA- Member, Secretary  
Secretary, Energy Department  
Secretary, Finance Department  
Secretary, Rural Development and Panchayat Raj Department  
Commissioner, Rural Development and Panchayat Raj Department  
Chairman, TANTRANSO  
Dr. Giridhar, CWET  
Prof. Ashok Jhunjhunwala, Chairman, RTBI, IIT Madras

#### **7. Funds release and Maintenance of Accounts :**

The Commissioner of Rural Development and Panchayat Raj will draw the funds and release the same to TEDA. Funds to the companies shall be released based on the progress of installation. Final payment should be made after the satisfactory completion of the work duly getting a certificate relating to completion from the competent authority of TEDA. TEDA will facilitate the Rural Development and Panchayat Raj Department in obtaining the subsidy share (CFA) from the Ministry of New and Renewable Energy (MNRE), Government of India for reimbursing to the State Government. In this regard the Rural Development and Panchayat Raj Department would submit the application in the format stipulated by MNRE.

#### **8. Warranty:**

TEDA should ensure the norms for good quality as per the approved standards of Ministry of New and Renewable Energy (MNRE). There should be warranty for each item such as solar panel, Battery, etc. which is to be taken care in the agreement itself. The SPV lighting system will have a warranty of two years. Further, the rate for Comprehensive Annual Maintenance contract (CAMC) will be called for another 3 years (beyond 2 years warranty period) through a tendering process. Depending on the rates quoted and the funds available the number of years for CAMC will be finalized by TEDA.

#### **9. Training Materials :**

TEDA will bring out Brochures/Hand outs and other training materials on the usage and maintenance of the SPV lighting equipments. A Handout on Dos and Don'ts will also be prepared and made available by TEDA.

