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9.4 Retention of IREP schemes with Tamil Nadu Energy Development Agency

Energy (C2) Department

G.O. (Ms) No. 40

Dated : 2.6.03

Read :

1. G.O.Ms.No.44, Energy (C2) Department dt:27.5.2002
2. From Tamil Nadu Energy Development Agency Lr.No.1262/2002 dt:30.7.2002.

ORDER

In the G.O. first read above orders were issued transferring the implementation of Integrated Rural Energy Programme Schemes with staff from Tamil Nadu Energy Development Agency to Rural Development Department without creating any new post.

2. Chairman and Managing Director, Tamil Nadu Energy Development Agency has stated that the programme might not receive proper and adequate attention at the Rural Development Department since that Department is responsible for monitoring multiplicity of programmes. He has also stated that Government of India are likely to enhance the allocation for this programme and unless a specialized agency like Tamil Nadu Energy Development Agency monitors the implementation of the programme, it would be very difficult to formulate specific proposals. The Chairman and Managing Director, Tamil Nadu Energy Development Agency has therefore requested the retention of monitoring and implementing of IREP schemes by Tamil Nadu Energy Development Agency itself.

3. The Government after careful examination, accept the proposal of chairman and Managing Director, Tamil Nadu Energy Development Agency and order that the orders issued in G.O.Ms.No.44 Energy (C2) Department dt:27.5.2002 are cancelled and monitoring of IREP schemes is retained with Tamil Nadu Energy Development Agency.

4. The Government also direct that a Monitoring Committee shall be constituted with the following composition to review and expedite the implementation of IREP scheme:

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| 1 Chairman and Managing Director, Tamil Nadu Energy Development Agency | Chairman |
| 2 Secretary to Government, Energy Department or his nominee | Member |
| 3 Director of Rural Development or his nominee | Member |
| 4 Joint / Dy. Secretary to Government, Finance Department | Member |
| 5 General Manager, Tamil Nadu Energy Development Agency | Convenor |

The above monitoring committee shall meet and finish reports to Government periodically.

(By order of the Governor)

R.RATHINASAMY
SECRETARY TO GOVERNMENT

SPECIFICATIONS FOR SOLAR PHOTOVOLTAIC SYSTEMS
(MNES 2002-2003 SPV PROGRAMME)

STREET LIGHTING SYSTEM**I. DEFINITION**

A stand alone solar photovoltaic street lighting system comprise a compact fluorescent lamp lead battery. PV module(s) control electronics. inter-connecting wire/cables. Module mounting hardware. Battery box Operation instruction and maintenance manual.

II. DUTY CYCLE

The system should be designed to automatically switch ON at dusk. operate through out the night and automatically switch OFF at the dawn. Under average daily insolation of 5 kWh/sq.m. on a horizontal surface.

III. LAMP

- (i) The lamp will be of compact fluorescent (CFL) type either 4 - Pin or 2 Pin type with a rating of 11W for the 4 - Pin type CFL. adequate pre-heating circuit must be provided.
- (ii) The light output from the lamp should be around 900+/- 5% lumens also please see (iii) of V given below.
- (iii) The lamp should be housed in a weather proof assembly suitable for outdoor use. with a reflector on its back. While fixing the assembly the lamp should be held in a base up configuration.

IV. BATTERY

- (i) Flooded electrolyte type positive tubular plate, low maintenance lead acid battery.
- (ii) The battery will have a minimum rating of 12V 75 Ah (at C/10) discharge rate.
- (iii) 75% of the rated capacity of the battery should be between fully charged & load cut off conditions.

V. ELECTRONICS

- (i) The inverter should be of quasi sine wave/ sine wave type with frequency in the range of 20-35 KHz Half-wave operation is not acceptable.
- (ii) The total electronic efficiency should be at least 80%
- (iii) No blackening or reduction in the lumen output by more than 10% should be observed after 1000 ON/OFF cycles (two minutes ON followed by four minutes OFF is one cycle)
- (iv) The idle current consumption should not be more than 10 mA
- (v) Electronics should operate at 12 V and should have temperature compensation for proper charging of the battery through out the year.
- (vi) Necessary lengths of wires/ cables and fuses should be provided.
- (vii) The PV module will be used to sense the ambient light level for switching ON and OFF the lamp.

VI. PV MODULE (S)

- (i) The PV module(s) shall contain crystalline silicon solar cells.

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- (ii) The power output of the module(s) under STC should be a minimum of 74 W. Either two modules minimum 37 W output each or one module of 74 W output should be used.
- (iii) The operating voltage corresponding to the power output mentioned above should be 164 V.
- (iv) The open circuit voltage of the PV modules under STC should be at least 210 Volts.
- (v) The terminal box on the module should have a provision for opening for replacing the cable required.
- (vi) A strip containing the following details should be laminated inside the module so as to be clearly visible from the front side.
 - a) Name of the Manufacturer of distinctive Logo
 - b) Model or Type No
 - c) Serial No

VII. 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) Fuses should be provided to protect against short circuit conditions
- (iv) A blocking diode should be provided as part of the electronics to prevent reverse flow of current through the PV module(s). In case such a diode is not provided with the solar module(s)
- (v) Full protection against open circuit accidental short circuit and reverse polarity should be provided.

VIII. MECHANICAL HARDWARE

- (i) A metallic frame structure (with corrosion resistance paint) to be fixed on the pole to hold the SPV module(s). The frame structure should have provision to adjust its angle of inclination to the horizontal between 0 and 45 so that the module(s) can be oriented at the specified till angle.
- (ii) The pole should be made of mild steel pipe with a height of 4 metres above the ground level after grouting and final installation. The pole should have the provision to hold the weather proof lamp housing it should be painted with a corrosion resistant paint.
- (iii) A vented acid proof and corrosion resistant painted metallic box for outdoor use should be provided for housing the battery

IX. OTHER FEATURES

- (i) The system should be provided with 2 LED indicators a green light to indicate charging in progress and a red LED to indicate deep discharge condition of the battery. The green LED should glow only when the battery is actually being charged.
- (ii) There will be a Name Plate on the system which will give
 - (a) Name of the Manufacturer of Distinctive Logo
 - (b) Serial Number
- (iii) Components and parts used in the solar street lighting systems should conform to the latest BIS specifications wherever such specifications are available and applicable.

- (iv) The PV module(s) will be warranted for a minimum period of 10 years from the date of supply and the street lighting system (including the battery) will be warranted for a period of two years from the date of supply

The Warranty Card to be supplied with the system must contain the details of the system supplied as given in the **Appendix to this ANNEXURE** the manufacturers can also provide additional information about the system and conditions of warranty as necessary.

- (v) An Operation Instruction and Maintenance Manual in English and the local language should be provided with the solar street lighting system.

The following minimum details must be provided in the Manual

- (a) About Photovoltaics
- (b) About solar street lighting system – its components and expected performance
- (c) About PV module
- (d) About CFL
- (e) About battery
- (f) Clear instructions about erection of pole and mounting of PV module and lamp housing assembly on the pole.
- (g) About electronics
- (h) About charging and significance of indicators
- (i) DO's and DONT's
- (j) Clear instructions on regular maintenance and trouble shooting of the solar street lighting system
- (k) Name and address of the contact person in case of non-functionality of the solar street lighting system.

