

## *Certificate of Merit      Electricity Distribution Companies (DISCOMs)*

# **KERALA STATE ELECTRICITY BOARD LIMITED**

**Vydyuthi Bhavanam, Pattom, Thiruvananthapuram (Kerala)**

### *Unit Profile*

KSEBL is functioning as a company, incorporated under the Companies Act, 1956, fully owned by the Govt. of Kerala. It generates, transmits and distributes electricity in the state and comes under the authority of the Department of Power.

The powers and functions are exercised by a Managing committee, constituting of the Chairman & Managing Director and nine Directors.

Its Mission is to provide quality power at affordable cost on demand, to the consumers of the State and to act as the catalyst for total development of the State. Employee strength is around 30,000nos. Out of this, BEE certified Energy Auditors & Managers are 40nos.(Approx.). It provides supply to more than 1.163Crores(approx.) consumers of the state and has been performing the planning and development of the power system.



## Energy Consumption

KSEB has consistently been reducing the Transmission and Distribution(T&D) losses, since 2001-02. The details are given below:

Year	T & D Loss within KSEB system (%)	Extent of reduction (%)		Total Energy sales within the state (MU)	Savings Generation & Power Purchase in (MU)	Savings in power purchase cost *(Rs Cr)
		Yearly	Cumulative			
2001-02	30.76			8667.32		
2002-03	29.08	1.68	1.68	8873.3	303.58	106.25
2003-04	27.44	1.64	3.32	8910.84	588.85	206.1
2004-05	24.95	2.49	5.81	9384.4	1049.24	367.23
2005-06	22.96	1.99	7.8	10269.8	1501.7	525.6
2006-07	21.47	1.49	9.29	11331	1935.94	677.58
2007-08	20.02	1.45	10.74	12049.85	2336.94	817.93
2008-09	18.83	1.19	11.93	12414.32	2635.18	922.31
2009-10	17.71	1.12	13.05	13971.09	3199.9	1119.97
2010-11	16.09	1.62	14.67	14547.9	3673.33	1285.66
2011-12	15.65	0.44	15.11	15980.53	4134.41	1447.04
2012-13	15.3	0.35	15.46	16838.24	4438.8	1553.58
2013-14	14.96	0.34	15.8	17454.04	4683.52	1639.23
2014-15	14.54	0.42	16.22	18410.9	5046.7	1766.34

## Major Energy Conservation Activities During- 2014-2015

### 1) Activity - 1

#### Agricultural Demand Side Management(Ag DSM)

ESCOT of KSEBL had conducted an energy efficiency study in agricultural paddy areas, of Alappuzha district, where traditional "Petti-Para" named inefficient (below 10%) dewatering pumping system was being utilized. This inefficient system was replaced with energy efficient submersible pumps. It was found that the efficiency and discharge has been increased considerably.(70lps for one 7.5Hp pump). 40% energy savings has been resulted. Subsequently, for the year 2014-15, energy efficient submersible dewatering pumping systems were implemented in 10(ten) padasekharams(paddy fields- Puncha/Kole area), covering Alappuzha, Trissur & Malappuram districts. with Energy efficient submersible pumping system, at Changanassery, Alappuzha, Trissur & Malappuram paddy areas.

With this energy efficient pumping system, reduction in energy consumption, increase in efficiency, reduction in annual maintenance cost, reduction in noise pollution, ease in operation etc. are resulted.



## 2) Activity-2

### Energy Saving activities in Ice plants

ESCO Team of KSEBL conducted energy savings activities at Trivandrum, Alappuzha, Ernakulam and Kannur districts. This was done by providing a thermal insulation (Poly Propylene Thermocol sheet of 12 mm thickness), over the brine tank, as a blanket. It was found that an energy savings of about 350 to 400 units per day has been resulted. Normally 1000 units per day is consumed. An energy saving of 1 to 1.5 units, in the formation of an Ice block (an Ice block is 50kg), has been resulted.

The investment required is about Rs. 20,000 to 25,000, for a 30T ice plant. Most of the Ice plants in Kerala are of capacity 30T.

### 3) Energy saving project in Govt. Hospitals

ESCOT of KSEBL has implemented an energy efficient project in Govt. Hospitals at Punalur, Adoor, Nilambur, Tirur & Palakkad. This is done by Retrofitting the inefficient lights and fans in the Govt. hospitals, with energy efficient LED bulbs, LED tubes, Star rated fans and Electronic regulators for ceiling fans. (0.15MU savings).

### 4) Implementation of High Voltage Distribution System (HVDS)

ESCOT of KSEBL has implemented an energy efficient project of High Voltage Distribution System (HVDS) at an area of Peyad Electrical Section of Trivandrum district. In the project 15kva, 11kv/415v Transformers were used to supply power to Peyad area. A limited number of consumers are fed from one Transformer. With this, the LT distribution line losses are reduced. Also, accidents, supply interruption, maintenance cost etc. are reduced.

## 5) Improvement of Distribution Transformer (DTR) stations

- Distribution Transformer(DTR) Stations (140nos.) of KSEBL were modified. The works carried out were revamping of Earthing, Lighting Arrestors, AB switch, Breather, Yard Metalling, Providing LT fuse Box, Tightening of LT fuse terminals, providing proper fencing, painting etc. With this reduction in energy loss and Transformer failure rate are resulted.

## 6) Awareness Programmes

- Energy conservation awareness programmes were conducted in 10 districts of Kerala, mainly to aware and motivate the Ice Plant owners and Farmers Associations, about the energy saving activities, in these areas.
- Conducted Energy Conservation Exhibitions at Poonthura (Trivandrum), Attukkal, St. Mary's School(Trivandrum), Aluva & Kasargod.
- Energy conservation awareness programmes were conducted, to various consumer segments, through the 211nos. of DSM cells of KSEBL, to reduce energy consumption and promote energy efficiency. (Around 650 classes and 65000 participants).

## 7) Preparation of Energy Conservation Leaf lets and posters

To promote energy conservation and achieve energy efficiency, Energy Conservation Leaflets, Posters, Power Point Presentations, etc. were prepared and distributed among various consumer segments.



## 8) Conducted Energy Audits

The mandatory Energy Audits (as per the Energy Conservation Act-2001) were conducted in the following buildings/Institutions.

- Southern Air command, Akkulam, Trivandrum.
- Kozhikode District Co-operative Hospital.
- Jubilee Hospital, Trivandrum.
- Institute of Animal Health and Veterinary Biologicals, Palode, Trivandrum.

## 9) Power system improvement/loss reduction activities

Renovation, modernization and strengthening of 11 kV level, Transformers, Re-conductoring of lines at 11kV level and below, Load Bifurcation, Load Balancing, Aerial Bunched Conductoring in dense areas, replacement of electromagnetic energy meters with tamper proof electronics meters, installation of capacitor banks etc.

## 10) Introduction of Solar Inverter Cum Peak Load Shifter (Sunshift)

KSEB Ltd. has launched a program named "Sunshift" for replacing ordinary inverters with Solar inverters which have an inbuilt intelligence for preventing the charging of batteries from the grid during peak hours. If there is enough backup available in the batteries, the peak time load will be met by this inverter, in an off grid mode, thereby reducing the load on the grid. With this program, the solar energy harnessed during day time can be used for meeting a portion of the energy requirements during peak load hours.