

First Prize

General Category

CHAMUNDESHWARI ELECTRICITY SUPPLY CORPORATION LIMITED (CESC) Mysore (Karnataka)

Unit Profile

The erstwhile Mysore State had the enviable and glorious position of establishing the first major hydroelectric generating station for commercial operations at Shivasamudra as early as 1902. The art at that time was still in its infancy, even in the advanced countries. The longest transmission line, at the highest voltage in the world, was constructed to meet the power needs of mining operations at Kolar Gold Fields. Also in the year Sept, 1908 the world famous Mysore Palace was illuminated. It is one of the most magnificent buildings and is a sight not to be missed when it is illuminated on Sundays and festive occasions. In the year 1909, the power supply was arranged for 600 Street Lights and there were 617 consumers. The generating capacity of the Shivasamudra Power House gradually increased to 42 MW in stages. To meet the increasing demand for power, the Shimsha Generating Station, with an installed capacity of 17.2 MW, was commissioned in the year 1940. The power demand was ever on the increase, for industries and rural electrification, and additions to generating capacity became imperative. And there on many major generating stations like Mahathama Gandhi Hydroelectric station, Nagajari Power House, Supa Dam Power House, RTPS, etc., were established.

The transmission and Distribution system which was in under the control of the GoK (then Mysore), was formed as MSEB in the year 1957 and the private distribution companies were amalgamated with KEB.

In order to improve the performance of the power sector and to be in par with the reforms initiated by Gol, the Karnataka Legislature passed Karnataka Electricity Reforms Act (KERCA). This reforms act mandated unbundling of the KEB and its Corporatisation. As a part of Corporatisation, the existence of KEB was ceased and Karnataka Power Transmission Corporation Limited was constituted from 1.08.1999. And the distribution sector was further divided into 4 companies depending on geographical area, namely;

- Bangalore Electricity Supply Company Limited (BESCOM)
- Hubli Electricity Supply Company Limited (HESCOM)
- Mangalore Electricity Supply Company Limited (MESCOM)
- Gulbarga Electricity Supply Company Limited (GESCOM)

These companies came into existence from 1st June, 2002.

In the year 2005, Chamundeshwari Electricity Supply Corporation Limited (CESC) carved out of MESCOM and is managing distribution of electric power for the five districts. CESC is functional from 01.04.2005 having its headquarters at Mysore. The five districts under CESC jurisdiction are Mysore, Chamarajanagar, Mandya, Hassan and Madakeri. CESC caters power to the world renowned industries viz Infosys Technologies, TVS Motors, Nestle, Reid & Taylors, Vikranth Tyres and etc.

Chamundeshwari Electricity Supply Corporation limited is a company incorporated under the company act 1956 and is a successor entity to Karnataka Power Transmission Corporation Limited (KPTCL) and MESCOM in respect of Distribution and retail supply of Electric power for five districts. Its operation started from 01.04.2005 as per the GOK order E.N.08 P.N.R 2005/262.

CESC has the responsibility of Distribution of power for the following five districts of Karnataka.

- Mysore
- Chamarajanagar
- Mandya
- Hassan
- Kodagu

Energy Details

Sl. No.	Particulars	2011-12	2012-13	2013-14
1	Energy Input in MU	5551.59	5857.84	5995.61
2	Total Energy Sales in MU	4652.10	4974.92	5112.33
3	Metered Sales in MU	2606.38	2792.17	2843.70
4	Unmetered Sales in MU	2045.72	2182.75	2268.63
5	Distribution Loss	16.20	15.07	14.73
6	Revenue Demand in Crs.	2089.72	2310.89	2452.54
7	Revenue Collection in Crs.	1917.66	2143.81	2399.16
8	AT & C LOSS	23.10	21.21	16.59
9	No. of Transformers existing	57196	63138	74029
10	Total No. of Installations (Inclusive of all Categories)	2457105	2361356	2635503
11	Total No. of Domestic Installations (LT-2 + HT-4)	1458420	1500545	1563069
12	Total No. of Commercial Installations (LT-3 + HT-2B)	170673	177003	187158
13	Total No. of Industrial Installation (LT-5 + HT-2A)	31320	32273	33547

14	Total No. of IP Installations (LT-4)	245270	267466	290097
15	Total No. of BJ/KJ Installations (LT-1)	495007	499276	496802
16	Total No. of Street Light & Water Supply Installations (LT-6+HT-1)	34010	35585	37900
17	Total No. of other Category Installations (LT7+HT3(a)+HT3(b))	22405	25579	26930
18	Consumption of Domestic Installations (LT-2 + HT-4) in MU	722.54	738.8	802.11
19	Consumption of Commercial Installations (LT-3 + HT-2B) in MU	299.26	318.66	337.68
20	Consumption of Industrial Installations (LT-5 + HT-2A) in MU	852.41	891.97	885.58
21	Consumption of IP Installations (LT-4) in MU	2127.25	2369.86	2359.78
22	Consumption of BJ/KJ Installations (LT-1) in MU	83.76	78.24	77.09
23	Consumption of Street Light & Water Supply Installations (LT-6+ HT1) in MU	525.61	541.80	599.01
24	Consumption of other category Installations (LT7+HT3(a)+HT3(b)) in MU	41.27	35.16	51.08
25	HT Line Existing in KM	31252	32979	37492.56
26	LT Line Existig in KM	70392	71472	73278.08
27	No. of Drinking Water Supply Installations serviced	451	1398	2856
28	No. of Gangakalyana Installations serviced	1836	1878	3455

Energy Conservation

1. Providing timer switches to street lights by ESCOMs

With the financial assistance of Rs.50.00 lacs from B.E.E, KREDL Mysore has awarded the work of providing energy saver units to street light control points in Mysore to M/s Energy Efficiency Services Limited (A joint venture company

of PSUs of Ministry of Power Government of India). This system includes fixing capacitors to improve Power Factor, Automatic Switching OFF and ON, brightness dimming after midnight etc.

Central Zone Sub-Division, Mysore is selected for providing these energy saver units to street light control points as a Demonstration Project. Till date a total of 50 No's Energy Savers are already installed at various locations, i.e. in the heart of the city.

The following capacity Energy Saver installed at various locations and in operation from 5-1-2015

- a) 3 KVA Capacity -17 No's.
- b) 4 KVA Capacity- 18 No's.
- c) 5 KVA Capacity -15 No's.

Minimum Energy savings 20%

The System supplied and maintained by M/s OMNE AGATE Systems Private Limited, Chennai.

The complete Energy Saving system guaranteed and maintained for 3 years from the date of operation.

Depending on the performance, intend to extend to other areas.

2. Demand side Management in Agriculture

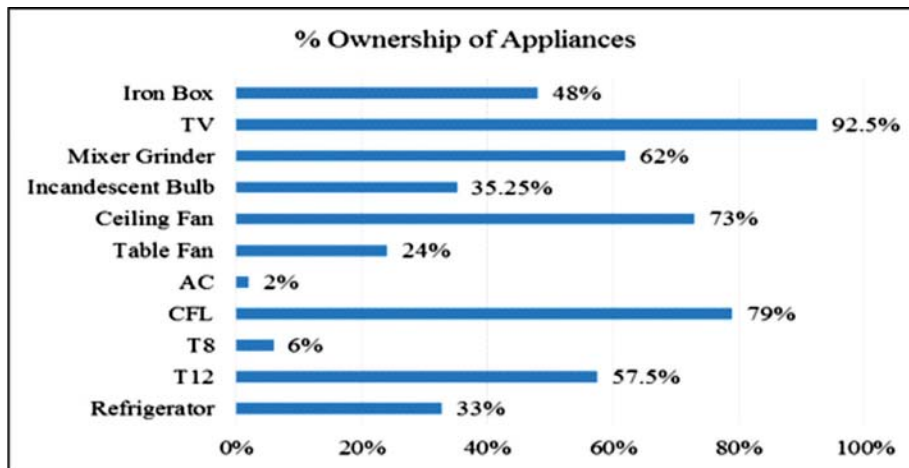
Ag DSM pilot project at Malavalli Tq, Mandya Dist. was taken up for implementation after entering into an agreement (EPA) with EESL, New Delhi on 06.08.2013. In this programme, the existing pump sets are to be replaced by energy efficient pump sets (EEPS), free of cost to farmers. 1337 numbers of I.P sets are replaced by EEPS coming under four 11kv feeders.

Further this project is extended to T.N Pur and Varuna areas of Mysore district covering 1753 nos of Pump Sets, for which KTPP exemption is sought from Energy Department, G.O.K.

Abstract showing energy calculation and savings under Ag DSM									
SL No	66/11 KV Sub Station	Feeder Name	EEPS Installed	Consumption in Units Per Hour (KWh/Hr)			Savings in Units at 180 hrs/ month for 10 months	% age savings	savings In Rs @ Rs 4.40 per unit
				Before	After	Difference			
1	Hadli	Antharahalli (F1)	184	1183.24	761.79	421.45	758610	35.62	3337884
2	Hadli	Chandahalli (F3)	525	3334.59	2099.66	1234.93	2222874	37.03	9780646
3	Hadli	Basavanapura(F4)	299	1905.82	1197.82	708	1274400	37.15	5607360
4	Mallavalli	Banasamudra(F6)	177	1102	687	415	747000	37.66	3286800
5	Mallavalli	Banasamudra(F8)	152	1007.57	637.79	369.78	665604	36.70	2928658
Total			1337	8533.22	5384.06	3149.16	5668488	36.90	24941347

DELP(DSM Based Efficient Lighting Program):

- **SCOPE:** Providing LED bulbs to domestic consumers for replacing incandescent/CFL bulbs there by reducing the evening peak demand. The Light output of 9 W LED Bulb is Equivalent to a 40 Watt ICL and equivalent to a 18 W CFL bulb. World over nations have stopped using CFL (because of the gas used in this is Poisonous and causes greenhouse effect)
- **Implementation:** CESC is planning to implement DELP project through Energy Efficiency Service Ltd. (EESL), Noida, (A Joint Venture PSU formed by Ministry of Power - Govt. of India)
- A survey has been conducted by EESL, Noida and the results of the survey is as given below



- **EESL Responsibilities:** EESL has structured an On-Bill Financing methodology, where upto five numbers 9W LED Bulbs to the domestic consumers having connected load of less than or equal to 2KW and upto ten numbers of 9W LED Bulbs to the domestic consumers having connected load of more than 2KW will be provided to registered consumers of CESC.
- EESL shall offer following two payment options to consumers
 1. Under the Upfront Payment Option, consumer shall make upfront payment of programme cost of LED Bulbs.
 2. Under On-Bill Financing (OBF) Option, consumer shall make upfront payment of INR 10/- per LED Bulb and thereafter the balance programme cost, shall be recovered through consumer monthly electricity bill by CESC over 10 monthly instalments.

- **CESC Roles:** CESC shall facilitate collection of monthly installments from those domestic consumers, who have taken LED bulbs under OBF payment mode from their monthly electricity bills and transfer the installment amount so recovered to EESL on monthly basis. To this effect CESC has to sign a guarantee payment agreement with EESL.
- **Energy Saving Potential:**

Energy savings calculation and LED Bulbs required for Implementation of DELP scheme					
Sl. No.	Particulars	Unit	5 bulbs for upto 2kW & 10 bulbs for 2kW above		
			Upto 2kW	Above 2kW	Total
1	Total No of domestic consumers (100%)	Nos	1914452	129156	2043608
2	No. of domestic consumers (75%)	Nos	1435839	96867	1532706
3	Number of LEDs offered under this Scheme for 75% consumers participation	Nos	5749650	968670	6718320
4	Average Wattage of 60W ICL and 14W CFL (Assumed penetration in the ratio of 30%:70% of ICLs:CFLs)	Watt	27.8		
5	Wattage of LED	Watt	9		
6	Power saving	Watt	19		
7	Hours of Usage	Hrs/day	3.5		
8	Operating days per year	Days/year	300		
9	Energy saved per LED per Day	kWh	0.066		
10	Energy saved per LED per year	kWh	19.74		
11	Total Energy saved per year	Million kWh	132619636.80		
12	Total annual savings in power purchase cost (Rs3.29 per kWh)	Rs. Cr.	436318605.07		
13	Potential reductions in evening peak load (apx)	MW	126304416.00		