

# 1. General Description of Building CTO Compound Madurai (Tamilnadu)

CTO compound, Tallakulam Madurai is one of the few buildings identified for this unique study and it is one of the key unit housing various equipments & Administrative offices.

This building is situated in the heart of the city.

The Telecom complex comprises 3 major Blocks namely CTO, CTMX, Lev-4 bldg which includes various Exchanges, Administrative offices and conference hall. Also there are 21 Staff Qtrs in this compound. The floor wise details are given below. The entire electrical operation and maintenance of all utilities in the complex is taken care by Madurai SSA.

Name of the Block	Floor	Utilization
<b>CTO BUILDING</b>	G- FLOOR	PROPOSED SIGNLE WINDOW CUSTOMER SERVICE CENTRE
	I FLOOR	SFMSS EQPT + ADMN. OFFICE + IQ
	II FLOOR	OFFICE + IQ
	III FLOOR	O/O GM(DEV) + CONFERENCE HALL
<b>CTMX BUILDING</b>		
	G - FLOOR	CELL MSC-II + EWSD MDF
	I - FLOOR	STR EQUIPMENT ( IN PROG ) + INTERNET EXCHANGE ( PROPOSED )
	II - FLOOR	EWSD EXCHANGE - 10 K

	III - FLOOR	ADMN. OFFICE
<b>LEVEL-IV BLDG</b>	G - FLOOR	STR POWER ROOM + OUTDOOR OFFICES
	I - FLOOR	CELLONE CSC + STR MUX EQUIPMENT
	II - FLOOR	STR OFFICE + GM (DEV) OFFICE
	III - FLOOR	CONFERECCCE HALL + STR OFFICE

Nearly about 225 employees are working in this complex.

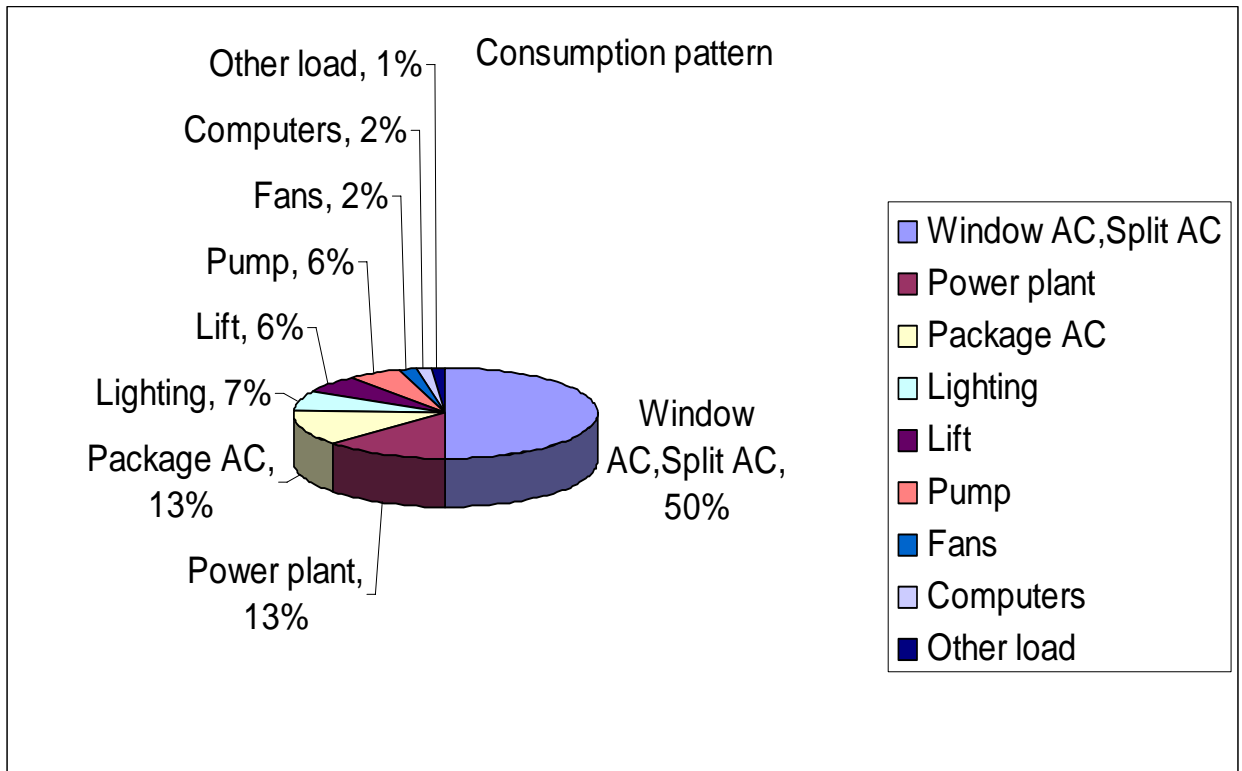
The campus is fed by 11 KV 3 phase supply form the State Electricity board through (1+1)630 KVA indoor transformer along with automatic power factor correction panel. 1 no. 500KVA,2nos.250 KVA and 1 no.160 KVA EA sets are used as stand-by source.

The details of Electro-Mechanical Services available in this complex is enclosed in Annexure B.

## 2. Energy Consumption

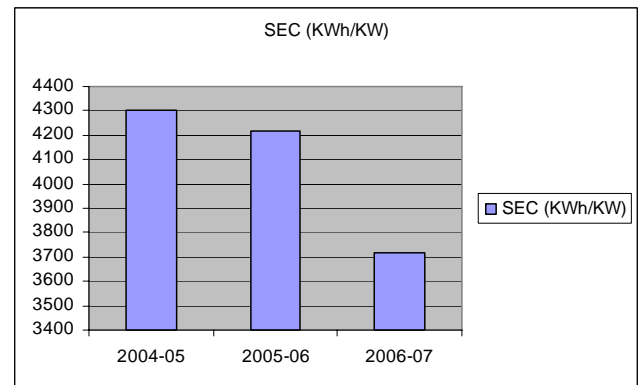
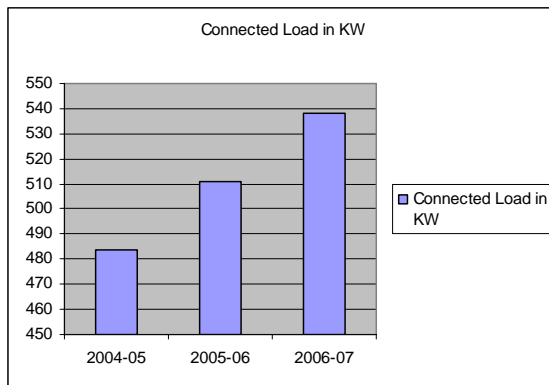
Year	Units (EB)	EB Bill (Rs.)	Units (EA)	Diesel Bill (Rs.)	Total Cost (Rs.)	Average P.F.
2004-05	2082046	12623647	42000	231000	12854647	.99
2005-06	2156064	13142313	41000	221000	13363313	.99
2006-07	1999780	12035713	43000	238000	12273713	.99

The below given chart shows the consumption pattern of main utilities.



## LOAD AND SPECIFIC CONSUMPTION: 2004-2007

Year	Load	Kwh	SEC
2004-05	484	2082046	4302
2005-06	511	2156064	4219
2006-07	538	1999780	3717



There has been a reduction of 11.89 % in Specific Energy Consumption as compared to 2005-06 as a result of various energy conservation measures adopted.

### **3. Energy Conservation Achievements**

#### **1.REPLACEMENT OF WINDOW/SPLIT AC UNITS BY ENERGY EFFICIENT SPLIT AC UNITS**

Out of 107 AC units available, (72 Window and 35 Split) 54 units were identified as inefficient and they were replaced by 34 nos. new energy efficient Split type units. Thus there is an overall reduction of 30 TR. ( Details in Annexure 'A' Pg.No.1)

#### **2.REPLACEMENT OF PACKAGE AC UNITS BY ENERGY EFFICIENT PACKAGE AC UNITS**

7TR Package AC units 6 nos.(4+2) were available in CTMX bldg. By optimizing the design and by using high sensible energy efficient AC units 4nos. (3+1)PAC units were provided. ( Details in Annexure 'A' Pg. No. 2)

#### **3.REPLACEMENT OF THYRISTER CONTROLLED POWER PLANT BY SMPS POWER PLANT**

Existing conventional Thyristor controlled power plant (which is an efficiency of less than 80%) is replaced by High efficient(95%) SMPS type power plant.

( Details in Annexure 'A' Pg. No.3 )

#### **4. POWER FACTOR IMPROVEMENT**

All the inefficient power factor improvement capacitors were replaced and additional capacitors were provided to improve the Power factor. ( Details in annexure 'A' Pg. No. 4 )

**By way of reducing the Energy consumption this building has reduced the emission of CO<sub>2</sub> by 234.43 Kg..**

#### **Rain water Harvesting:**

Concerned with the depletion of water sources and to abide the ordinance of State government Rain water harvesting has carried out in this building.

## **Organization set up**

Tamilnadu circle is responsible for maintaining and providing Telecom services in the entire state of Tamilnadu headed by Chief General Manager (HAG level officer) , Tamil Nadu circle , Chennai with 16 Secondary Switching Area located at district level are headed by General Managers ( SAG level officer). The energy conservation programme has been given a major thrust in Tamil Nadu as can be seen from the following setup available for implementing monitoring and review of various energy conservation measures.

### **At State level – Energy core group consisting of following members**

Chief General Manager (Telecom) Tamilnadu Circle	-	Chairman
Principle Chief Engineer(E) Tamilnadu Zone	-	Member
Principle General Manager (O) Tamilnadu Circle	-	Member
General Manager (Finance) Tamilnadu Circle	-	Member

### **At SSA/ District Level - Energy core group consisting of following members**

PGM/GM in charge of SSA	-	Chairman
SE(E)/EE(E)	-	Member
IFA of SSA	-	Member

In order to create adequate awareness among the executives slogans are displayed at various places in the buildings and energy conservation seminars/presentations are conducted at district level.

### **ENERGY POLICY:**

BSNL Electrical wing , Tamil Nadu is committed to conserve energy in all its operations. We shall transform energy conservation into a strategic business goal and make it as a way of life.

## **ENERGY OBJECTIVES:**

Energy auditing of

1. All buildings once in a year having connected load of 500 KW or more.
2. One building per quarter per sub division with sub station or AC plant of 30 Ton and above.
3. 6 buildings per quarter per sub division not covered in the above category.
- 4.3 Core Energy management group meeting/programme for each SSA in a year
5. Maintaining the Power factor above 0.95

The Electrical wing placed under CGM TN circle, headed by Principal Chief Engineer(E) responsible for implementing the energy conservation measures in Tamil Nadu . The Electrical Wing is an ISO :9001-2000 Certified unit and has 2 Superintending Engineers located at Chennai and Madurai and 6 Executive Engineers at Chennai, Salem, Trichy, Coimbatore, Madurai and Tirunelveli with field Sub-Divisional Engineers located with each SSA's. Following Certified Energy Auditors are available in Tamilnadu Telecom Circle.

- 1) V.P. Gupta, Principal Chief Engineer (E)
- 2) V.Jeyapal, Chief Engineer (E)
- 3) S.P. Singh Nimrana , Superintending Engineer (E)
- 4) S.S. Jain, Superintending Engineer (E)
- 5) S. Sathyanarayanan, Sub Divisional Engineer (E)

Following Certified Energy Manager are available in Tamilnadu Telecom Circle.

- 1) R. Venkatesh Junior Telecom Officer (E)

All the buildings having connected load of more than 500 KW in Tamil Nadu have been energy audited in the year 2006-07 and out of 2010 bldgs. having connected load less than 500 KW, 1108 bldgs. have been energy audited by electrical wing engineers.