

The Energy Conservation Act, 2001

- Mandates the setting up of a Bureau of Energy Efficiency (BEE) that will introduce stringent energy conservation norms for energy generation, supply and consumption. BEE, the prime advisory body was established under Section 3 of the Act with effect from 01.03.2002.
- Powers of the State Governments to facilitate and enforce efficient use of energy and its conservation is conferred under Section 15 of the Act.
- Under Section 15(d) of the Act, State Government has to notify a Designated Agency for enforcing the provisions of the Act and our department has been notified for this purpose. TNSDA W.E.F. 10.05.201

Power of State Government

Section –15

- b) direct every owner or occupier of a building or building complex being a designated consumer to comply with the provisions of the energy conservation building codes;**

- d) designate any agency as designated agency to coordinate, regulate and enforce provisions of this Act within the State;**

- e) take all measures necessary to create awareness and disseminate information for efficient use of energy and its conservation;**

- g) take steps to encourage preferential treatment for use of energy efficient equipment or appliances;**

- h) direct, any designated consumer to furnish to the designated agency, information with regard to the energy consumed by such consumer;**

Energy Saving Potential in Various Sectors in Tamil Nadu Initiative of BEE - NPC

- **Agricultural Pumps @ 25% : 3 BU**
- **Domestic @ 20% : 2.6 BU**
- **Industries @ 10% :1.9 BU**
- **Commercial Buildings @ 25% : 0.192 BU**
- **Municipalities @ 20% in water works and 25 % in street lighting:0.126 BU**
- **SME Clusters : .017 BU**

**❖ Total savings @ 13% of total : 8 BU
energy consumption**

➤ **It is a paradoxical situation that on one side there is a shortage of power whereas on the other side there lies an energy saving potential**

Building Sector

- ❖ Household energy mix varies from traditional bio-mass to gas and electricity
- ❖ Commercial space and energy use is increasing rapidly
- ❖ Building Construction Contributes to 10% GDP
- ❖ Construction industry growth rate: world average of 5.2%
 - In India it is 10 %
- ❖ Commercial buildings are one of the major consumers of energy and are the third largest consumers of energy, after industry and agriculture: 20%
- ❖ The potential for energy savings is 40 – 50% in new buildings, if energy efficiency measures are incorporated at the design stage.
- ❖ In existing buildings, the potential can be as high as 20-25% which can be achieved by implementing house keeping and retrofitting measures.

Energy Conservation Building Code (ECBC)

- Covers commercial buildings
- Building components included
 - Building Envelope (Walls, Roofs, Windows)
 - Lighting (Indoor and Outdoor)
 - Heating Ventilation and Air Conditioning (HVAC) System
 - Solar Water Heating and Pumping
 - Electrical Systems (Power Factor, Transformers)

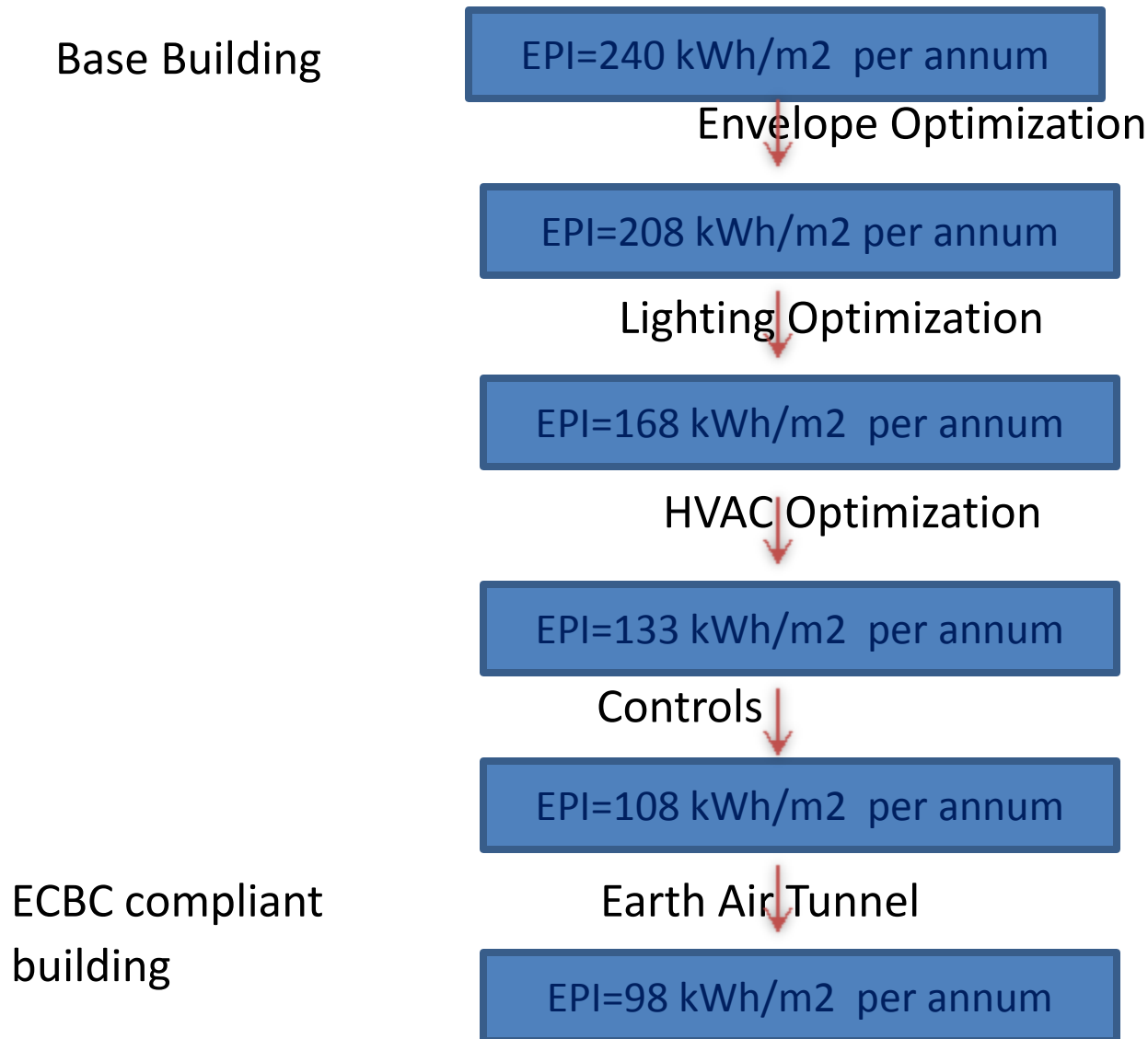
Sec. 13 (2)(d) read with 14(p) of EC Act, 2001:

To prescribe norms for efficient use of energy and its conservation in the building or building complex-
Launched by MOP on 27.06.2007

What is Energy Conservation Building Code (ECBC)

- **ECBC sets minimum standards for design and construction of energy efficient building**
- **ECBC prescribes energy efficient design or retrofit of building so that:**
 - **It does not compromise the comfort, health or productivity of the occupants;**
 - **Life Cycle Costs (construction costs + energy cost) are minimised**
- **Energy conservation building code has been prescribed under Section 14(p) of the Act, 2001 and launched on 21.05.2007**
- **Applicable to buildings or building complexes that have a connected load of 500 kW or greater or a contract demand of 600 kVA or greater.**

Energy Savings Achieved through ECBC interventions



Overall Summary of Commercial Buildings

Sno.	Particulars	Value	Units
1.	Total Number of Commercial Buildings	291	No's
2.	Total Electricity Consumption (2007-08)	960240064	Kwh
3.	Total CMD	355714	KVA
4.	Avg. CMD per Building	1223	kVA
5.	Total Electricity Consumption by all sectors in TN	59045.44	MU
6.	% Electricity Consumption by Building sector	1.62	%

Category wise Energy Saving Potential in Commercial Buildings

Sl. no.	Category	Number of Buildings	Energy Consumption		Category wise Savings potential estimated in MU
			Total CMD	UNITS Kwh	
1	Office Building	96	1,17,000	284046786	56.81
2	Hotels	19	7260	57672025	11.53
3	IT Parks	31	37231	111978994	22.4
4	Educational Institutions	39	43228	131119201	26.22
5	Hospitals	26	29800	109622341	21.92
	TOTAL	291	355714	960240064	192

EEM Adopted at SDA building

- **Installed Electronic chokes in place of copper chokes for all 325 fluorescent lamp fittings- Tubes replacement on failure reduced from 10 per month to 2 per month .**
- **Installed new energy efficient water pump in place of existing inefficient pump with pipes and foot reflex valves**
- **Installed 3 nos. Energy efficient Air conditioners in place of inefficient Air conditioners-Improved environment for lab testing (from 26 deg C to 23 deg C)**
- **Provided CFL at all rest rooms and verandas.**
- **Provided Electronic Regulators for all 100 fans.**
- **1No.LED Sign Board depicting Energy Conservation Slogan.**
- **The voltage output of the stabilizer feeding entire building was set at 400 V.**
- **Savings Achieved: 15 %, Reduction in annual energy consumption: From 45000 units to 35000 units, 20%**

Activities under progress

1	<p>IGEA in 18 Public Buildings</p> <ul style="list-style-type: none">➤ Energy saving potential from the above buildings: 10 MU➤ Saving potential in Maximum Demand: 2 MW
2	<p>Development of SME Cluster among Lime Kiln units</p> <ul style="list-style-type: none">➤ Power optimizer for the Pulverisor Motor yielding 15% of electricity savings of 4 Lakh kWh.➤ UPS backup for the critical load (blower motor) yielding 6500 tons savings of charcoal.➤ Additional saving of 10% yielding to 6500 tons savings of charcoal by reducing charcoal input by monitoring temperature inside the kiln from the sensors.
3	<p>Energy Efficiency Improvement to Municipal Pumping station</p> <ul style="list-style-type: none">➤ Annual Energy Bill: Rs. 22Lakhs; Anticipated Savings: Rs.6.5 Lakhs
4	<p>LED Village Campaign</p> <ul style="list-style-type: none">➤ Individual huts/tenements will be provided with interior and external lighting in addition to the street lighting➤ Number of beneficiaries: 250➤ Savings : Rs. 1.56 Lakh per annum

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Thank
You!