



Energy Efficiency Standard & Labeling Policy of India



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Highlights

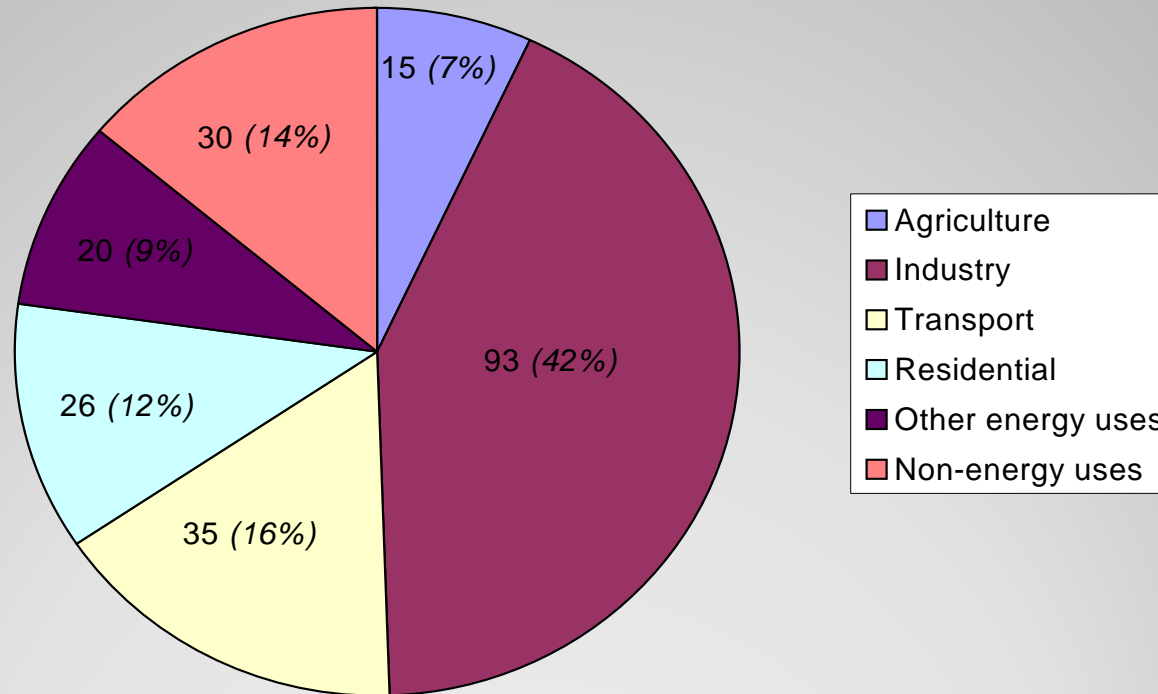
- ✓ Energy Trends in India
- ✓ Introduction Bureau of Energy Efficiency (BEE)
- ✓ Standard & Labeling (S&L) Programme



Energy Trends in India

- Energy consumption in India is low
 - ✓ Indian Per capita energy consumption is 530 kgoe while world average is 1770
 - ✓ Per capita electricity consumption is 631.5 kWh against world average of 2500 kWh
 - ✓ Installed Indian Capacity 145,000 MW (approx.)
 - ✓ Peak Load Electricity Supply Shortage 15%
 - ✓ Base Load Supply Shortage 9%
- Energy demand is increasing due to rising incomes, accelerated industrialization, urbanization and population growth
 - ✓ 2003-04 : 572 Mtoe
 - ✓ 2016-17 : 842-916 Mtoe

Sectoral Composition of Commercial Energy Consumption in India (MOTE)



* *Per Capita Electricity Consumption :612 kwh*

* *Source :CENTRAL Electricity Authority, MoP, Govt. Of India (2003-04)*



Introduction

Bureau of Energy Efficiency (BEE)

As

Statutory Body

Created by

Energy Conservation Act-2001

On

1st March 2002

for Implementation of Energy Efficiency Policy in India.

Energy Conservation Act, 2001



- Act empowers Bureau and Central Government to specify Energy Consumption Standards for large energy –intensive industries.
- Prohibit manufacture or sale or import of equipments and appliances that do not meet standards and require display of Energy performance labels on equipments and appliances.
- Require all new large commercial building to be compliant with Energy Conservation Building Code.



Ongoing Programmes

Standard & Labeling (S&L) Programme

Energy Conservation Building Code (ECBC)

Bachat Lamp Yojna
(CDM Based Efficient Lighting Project For House hold)

Energy Efficiency in Industries

Agricultural Demand Side Management (ADSM)

Municipal Demand Side Management (ADSM)

Strengthening of State Designated Agencies (SDA)

Standard & Labeling Programme in India



- BEE is established to implement & monitor the Energy Conservation Act, 2001.
- BEE had launched S&L Scheme as voluntary basis under National Energy Labeling Programme on 18th May 2006. covering Eleven Products phase wise.
- The Standards and Labeling is a direct outcome of section 14 clause (a)-(d) of the Energy Conservation Act, 2001.
- One of the key thrust areas of EC Act, 2001 is Standards & Labeling Program.



S&L Influence on Purchases for

- Domestic and agricultural Consumers
- Commercial consumers
- Institutional and Government Purchases
- Industrial Users
- Electricity Generating, Transmitting, and Distributing companies

Sample Labels



POWER SAVINGS GUIDE

ELECTRICITY CONSUMPTION
300*
UNITS PER YEAR

Appliance : Refrigerator
 Brand : XX
 Model : XX
 Type : xx
 Gross volume : XX
 Storage volume : XX

ENERGY IS LIFE
BEE
CONSERVE IT

*Under test conditions, when tested in accordance with XXX. Actual electricity consumption will depend on how the appliance being used.

Label -1 Refrigerator

BEE STAR RATING PLAN

STAR RATING	1	2	3	4	5
Lumens per Watt at 1000 hrs of use	40	45	50	55	60
Lumens per Watt at 2000 hrs of use	42	47	52	57	62
Lumens per Watt at 3000 hrs of use	44	49	54	59	64

Under test conditions when tested in accordance to IS 2418. Actual efficiency will vary as per site conditions.

ENERGY IS LIFE
BEE
CONSERVE IT

Label 2 -Tubular Fluorescent Lamp

Products Covered Under S&L



Phase-I

1. Frost Free Refrigerator
2. Tubular Fluorescent Lamps
3. Room Air Conditioners
4. Direct Cool Refrigerator
5. Distribution Transformer

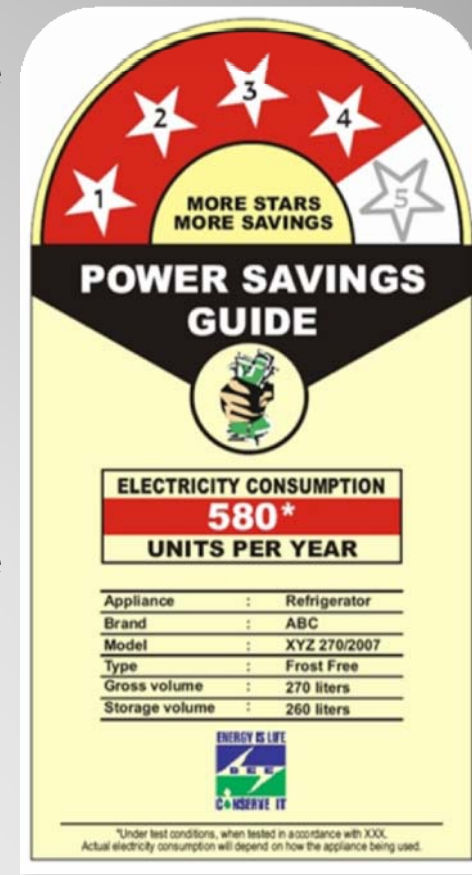
Phase-II

1. Induction Motors
2. Agricultural Pumps
3. Ceiling Fans
4. LPG Stoves
5. Electric Geysers
6. Colour TV

Type of Label Adopted - Comparative



- Standing Committee of Parliament on Energy recommended introduction of Comparative label as the first step.
- Accordingly, BEE has developed a labeling process that is:
 - ✓ Collaborative in nature
 - ✓ Protecting consumer interests as the underlying factor
 - ✓ Market driven

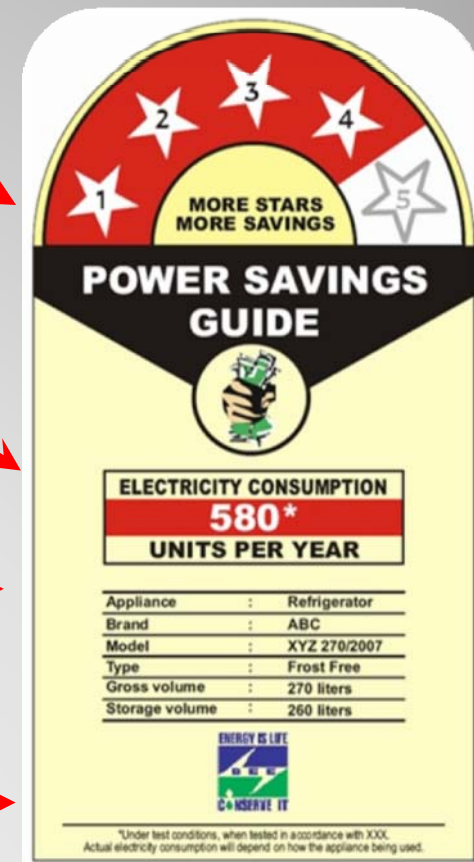


Indian Comparative Label Features



- Stars (1-5) display the relative efficiency of the product.
- Daily/annual Power consumption is used for comparing the actual energy use between different models.
- Important product specifications like brand, model, type, capacity, efficiency (EER), etc.

Logo



Criteria for Selecting Products for Labeling



1. Rapid Growth in Sales and Energy Demand is predicted

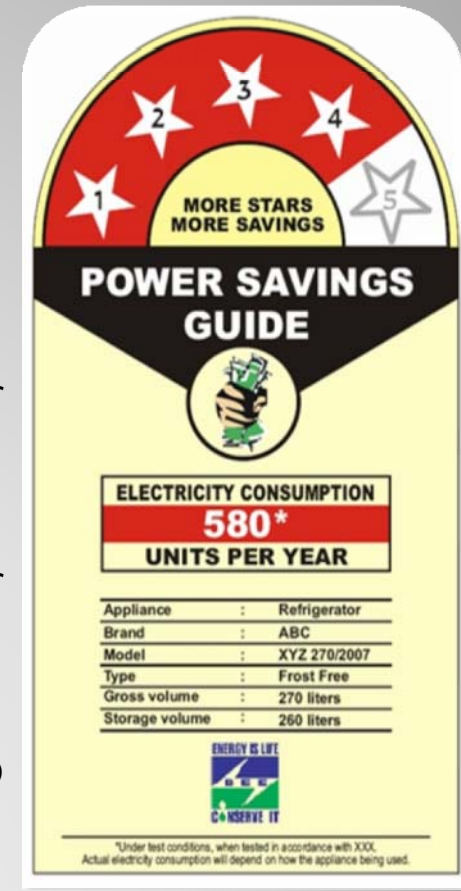
2. Significant Differences in Energy Efficiency of Different Models

3. Energy Efficient Technology exists but not being used in Most of the products

S&L Technical Committee



- Constitution of Technical Committees for:
 - ✓ Technical plan for labeling:
 - ✓ Label Design
 - ✓ Features for the consumers.
 - ✓ Decide on test procedures and protocols for initial, check, and challenge testing.
 - ✓ Recommending efficiency ranges for star rating.
 - ✓ Testing facilities identification and up gradation.





Testing Labs for ACs & Refrigerators



Central Power
Research Institute
(CPRI), Bangalore

Electrical Research &
Development
Association
(ERDA), Vadodara

Intertek Testing
Services Pvt. Limited
(ITS)

National
Accreditation
Board for Testing
& Calibration
Laboratories
(NABL)

Department of
Science
& Technology
(Govt. of India)

Future - Equipments / appliances for S&L Programme



Home Appliances

- ✓Washing Machines
- ✓Electronic Ballast
- ✓Computer Monitors
- ✓Consumer Electronics

- ✓Uninterrupted Power Supply (UPS)
- ✓External Power Supplies (EPS)
- ✓Battery Chargers (BCs)

Refrigerator & AC Systems

- ✓Adaptive Defrost
- ✓Commercial Freezers
- ✓Visi Coolers
- ✓Chocolate Coolers
- ✓Chest Coolers
- ✓Heat Pumps & Multi Split Systems

Motor systems

- ✓Agricultural pump sets
- ✓Industrial Fans & Blowers

Energy savings during first year of Programme (2007-08)



Appliance	Electricity Saving (Million Kwh)	CO ₂ Reduction as an impact of Star labeling
Air Conditioners	125266 Million Kwh	0.106476 Million Tons
Refrigerators	1113334 Million Kwh	0.946334 Million Tons
TFLs	172800 Million Kwh	0.146880 Million Tons
TOTAL	1411400 Million Kwh	1.1996690 Million Tons

Mission- S&L Programme



- To reduce overall energy consumption by use of Energy Efficient equipments/appliances 18 BU by 2012 (~3000 MW).
- Targeted an avoided capacity addition of over 3000 MW during XI plan of Govt. of India

ありがとうございます。

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Bureau of Energy Efficiency
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<http://www.bee-india.nic.in>