



Presentation on Energy Conservation

To

ACEF



Regulatory Framework for energy efficiency in India

The Energy Conservation (EC) Act 2001 provides the legal framework for promoting energy conservation and energy efficiency activities which include:

- Standards and Labels for appliances & equipment
- Energy Conservation Building Code (ECBC) for commercial buildings.
- Energy Consumption norms for energy intensive industries
- Demand Side Management (DSM) programme for existing building, streetlights, agricultural pumping and SMEs.
- Certification of Energy Auditors and Managers

Energy Conservation Act was amended in 2010 on the recommendations of the Committee on Sub-ordinate Legislation



Implementing Agencies

- **EC Act mandates BEE to co-ordinate energy efficiency activities at the centre**
 - States to notify State Designated Agencies (SDAs) to enforce Act in states
 - 34 SDAs notified.
 - SDAs to establish Energy Conservation Fund (SECF) to implement energy efficiency projects and outreach activities.
- **Achievements :**
 - Central government provides financial support for projects, manpower, etc.
 - 43 demonstration projects implemented in street lighting and water pumping .
 - LED Village Campaign implemented in 28 states
 - Avoided capacity addition of 1065 MW during the XI plan.
 - SECF established in 26 states; 17 states have provided matching contribution.



Standards & Labeling of Appliances

Goal : Market transformation towards energy efficient appliances

Approach : Voluntary regime → Mandatory regime, Progressive tightening of regulations.

Present Status :

➤ Standards and labeling - 19 appliances - 4 mandatory - tubular fluorescent lamp, room air conditioner, frost free refrigerator, distribution transformers .

- Average efficiency increases:

	2007	2013
Air - conditioner (EER)*	2.3	3
Refrigerator (kWh/l/year)#	1.93	1.28

➤ Avoided power generation of 8558 MW till March, 2014 :

➤ Energy consumption standards for motor vehicles notified on 23rd April, 2015.

* EER – Energy Efficiency Ratio

#(kWh/l/yr) - units per litre per year



Energy Conservation in Industry

Goal : Improvement of energy efficiency in energy intensive industry

Approach : NMEEE (one of the 8 missions under the NAPCC) mandates reduction in specific energy consumption (SEC) of Designated Consumers through Perform, Achieve & Trade (PAT) scheme by 5% in 2014-15 over 2010.

Cluster-specific energy-efficiency promotion in SMEs.

Present Status :

- 478 units in 8 sectors; each assigned a target specific energy consumption to be achieved in 2014-15
- National Target : 6.686 million tonnes of oil equivalent (mtoe) in 1st PAT Cycle (by 2014-15)
 - » Achievement > Target ESCerts to be issued which can be traded.
 - » Achievement < Target Purchase of ESCerts / Penalty to be paid
- Deepening & widening : Next cycle (2016-17 to 2018-19) to include 3 more sectors (Refinery, DISCOMs and Railways) and would also include more units in existing sectors
- Saving target on completion of PAT cycle II (by 2018-19)
 - Electricity savings : 19.47 BU
 - Avoided generation capacity : 4000 MW
 - Thermal Savings : 15.04 mtoe
- Knowledge Exchange Platform for sharing best practices on energy efficiency in industries launched in February, 2015
- Develop cluster specific energy efficiency manuals, Detailed Project Reports (DPRs) on energy efficient technologies, capacity building & knowledge enhancement of manpower in SMEs.



Fiscal Instruments

➤ Energy Efficiency Financing Platform (EEFP)

Platform for sharing of knowledge between all the stakeholders of energy efficiency projects like energy auditors, designated consumers, ESCOs, SMEs and financial institutions.

BEE has signed MoU with FIs to lend for energy efficiency projects. MoUs signed with HSBC, SIDBI, PTC Financial Services, etc.

➤ Framework for Energy Efficient Economic Development (FEEED)

Fiscal instruments to facilitate energy efficiency projects implementation are been developed – such as

- Graded excise duty for STAR labelled equipments in favour of higher efficiencies
- Income and Corporate tax incentives for ESCOs/ Venture Capital funds, etc. in energy efficiency
- Providing infrastructure status to ESCO business

DSM Action plans for 35 DISCOMs under development



Fiscal Instruments (2)

➤ **Partial Risk Guarantee Fund for Energy Efficiency (PRGFEE):**

Debt guarantee to Financial Institutions for ESCO (Energy Service Companies) investments (up-to Rs. 3.0 Crores or 50% of loan, whichever is less) – fund created and REC is the fund manager – EESL is the transaction adviser

➤ **Venture Capital Fund for Energy Efficiency (VCFEE):**

Equity investments in ESCO projects (up-to Rs 2.0 crores or 15% of equity, whichever is less)

Fund set up with SIDBI as the fund manager



Demand Side Management : Lighting

- Goal** : Facilitate market transformation towards energy efficient lighting
- Lighting sector accounts for about 20% of the total electricity consumption in India.
 - Estimated 3 crore street lights in the country can annually save 5 billion KWh (2000 MW) and cost savings of Rs. 3,000 crore to Municipalities and Urban Local Bodies.
 - Estimated 77 crore incandescent bulbs for household replaced by LEDs, would yield annual savings of 25 billion KWh (20,000 MW) .

Approach : Business model based on initial investment by EESL, and monthly repayments by utilities

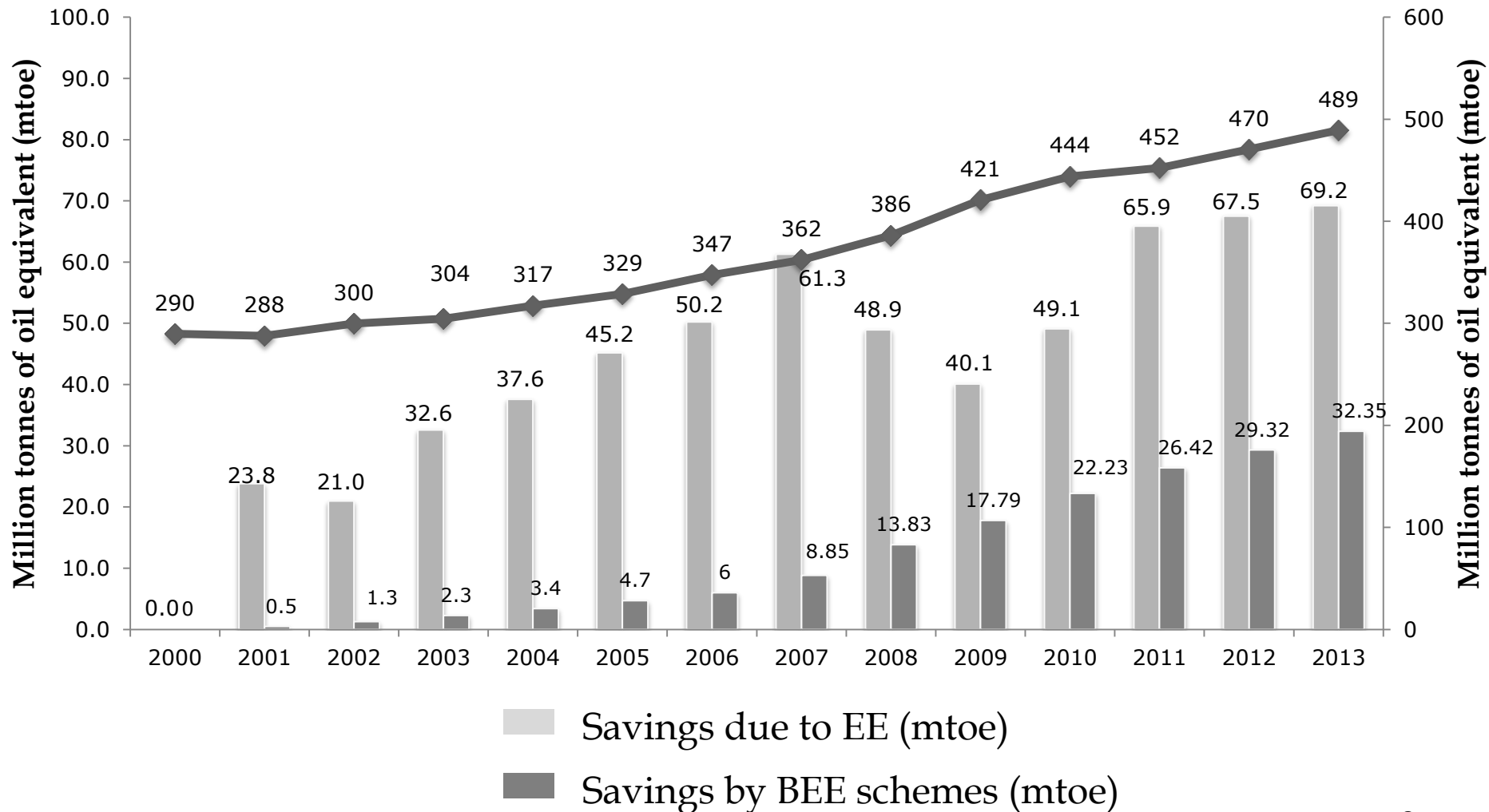
Present Status :

- Project pipelines for 100 cities for domestic energy-efficient lighting, and 100 cities for street lighting
- Bulk procurement of LED bulbs by EESL has led to price reduction of 7W LED bulb from about Rs.310 per bulb in February, 2014 to Rs.82 per bulb in March, 2015.

Hon'ble Prime Minister launched LED based efficient lighting for households and street lights on 5th January 2015



Energy Savings





Energy Savings- Avoided Capacity Addition

	XI Plan					XII Plan				
Year	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Avoided Capacity (MW)	0623	1505	2868	2881	2959	4861	5587	6520	-	-
Total (MW)	10,836 (Against target of 10,000 MW)					16,968				



Outreach

- **National Energy Conservation Awards:**

Recognizing improvements in energy efficiency in industries, buildings, appliances since 1999.

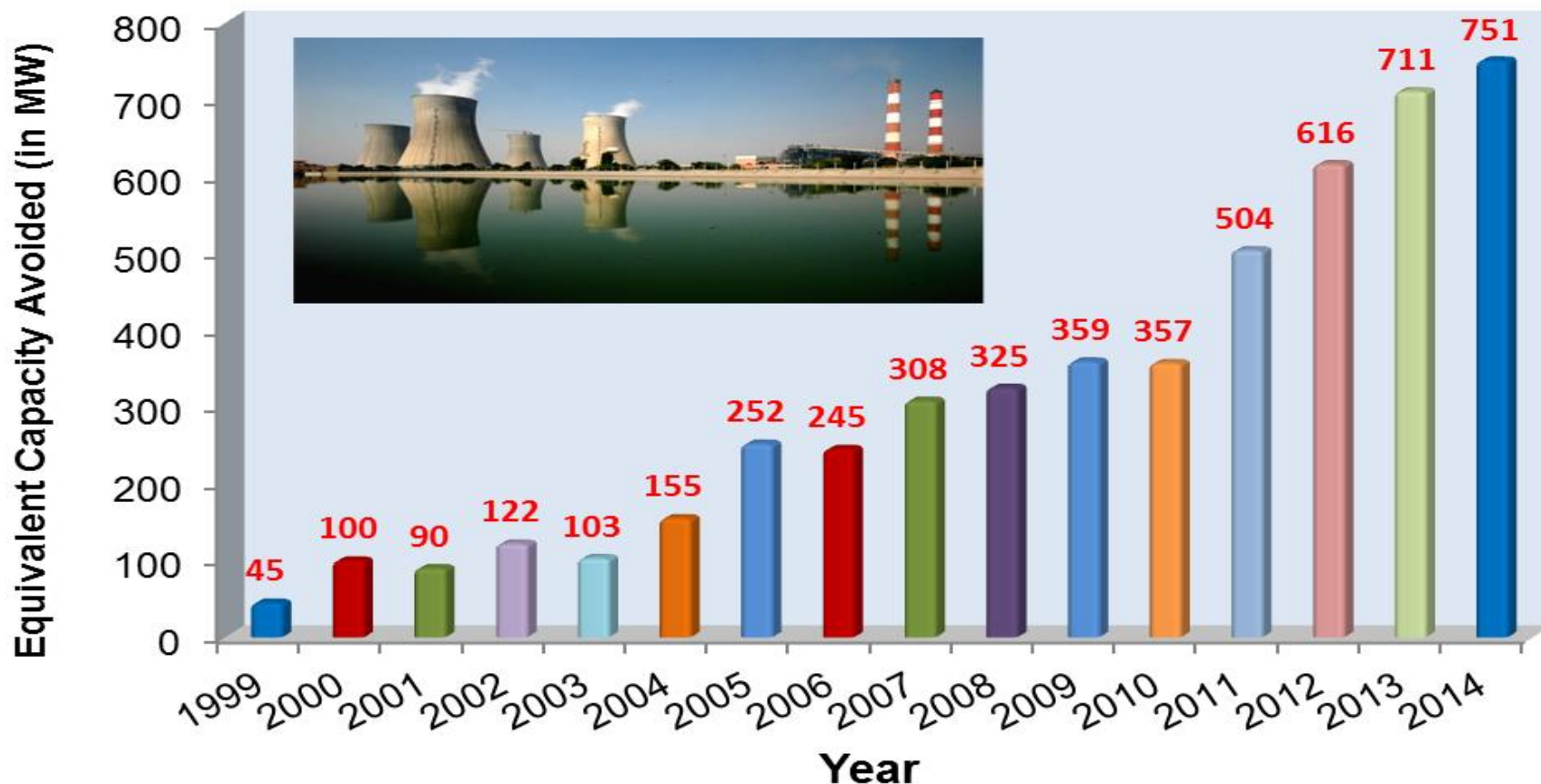
- **National children's Painting competition on energy Conservation:**

Children of classes 4 to 7 in schools across the country participate to illustrate their ideas on energy conservation since 2005.

- **Advertisements on electronic and print media to promote information about BEE energy star labels.**



National Energy Conservation Awards





सत्यमेव जयते

Thank You