



BEE Schemes

Introduction

The Bureau of Energy Efficiency was set up in March 2002 with a mandate to assist in developing policies and strategies with a thrust on self-regulation and market principles, within the overall framework of the Energy Conservation Act, 2001.

In its efforts to achieve this objective, the BEE has introduced several programmes, which are currently at various stages of implementation. The common objective of each of these programmes is efficient use of energy in the relevant sector.

Bachat Lamp Yojana

The scheme was introduced on 28th May 2007 by the Hon'able Prime Minister during the Chief Ministers' conference on Power. BEE is co-ordinating voluntary efforts under this scheme to provide high quality CFLs to domestic consumers at Rs 15/- per lamp which is comparable to the cost of an incandescent bulb. This initiative will ensure easy penetration into the domestic market, which is currently difficult due to the high cost of a CFL lamp ranging between Rs 80 - Rs 100 depending on the wattage. The price reduction would be achieved by utilizing the Clean Development Mechanism of the Kyoto Protocol. The Kyoto Protocol provides for CFL suppliers to earn Certified Emission Reductions (CER) on the basis that CO₂ emission reductions occurring on account of low electricity consumption of CFLs.

The scheme targets replacement of about 400-million incandescent bulbs in use in the country during the XI Plan period (2007-12), leading to a possible reduction of 6,000 MW of electricity demand and a reduction of about 24million tones of CO₂ emissions every year; if distribution companies in all states implement the programme.

The first step was to encourage CFL manufacturers and traders to join the scheme. While most of the market leaders in CFL technology have been empanelled under this scheme, there are 10 CFL manufactures and 8 CFL traders who have shown their intent to participate in this CDM based scheme.

Next, BEE has shortlisted a monitoring and evaluation agency to undertake the monitoring of CFL in the CDM project areas through SMART DURATION HOUR METERS with a cutting edge GSM based communication technology.

To further facilitate the project, BEE has announced a "Programme of Activities" (PoA) under an umbrella framework to harmonize the development and implementation of the various CDM projects by empanelled manufacturers and traders from different parts of the country. Through the PoA, key CDM requirements would be defined, including project baseline and comments from stakeholders. The CO₂ emissions reduction would be assessed by a monitoring protocol. The PoA approach reduces time and transition costs by preventing repetition since these requirements will not need to be

addressed by area-specific projects within the PoA. BEE will undertake monitoring under the approved methodology in all project areas. A monitoring scheme with an expenditure of Rs 48 crores has been approved during the XI plan.

The response from State DISCOMS has been very encouraging with 9 DISCOMS having agreed to implement the scheme within their respective states.

The official launch of the scheme is scheduled shortly. Initially a pilot programme will be rolled out in Vishakapatnam (Andhra Pradesh) and Yamuna Nagar (Haryana). In each of these 6.5 CFLs will be distributed among households. The PDD for the Vishakhapatnam project has been submitted for registration to UNFCCC and has been uploaded on their website.

To address the issue of safe disposal of CFLs, BEE along with the MoEF has developed some guidelines on environmentally sound Mercury Management for safe disposal of the fused CFLs.

Standards and Labelling Scheme

The scheme was launched in May 2006 by the Hon'ble Minister of Power. The objective of this programme is to address the cost saving potential among equipments manufactured and sold for household and similar applications, and thereby providing the consumer to make an informed choice about any product. The scheme will impact the energy savings in the medium and long term and simultaneously equip the domestic industry to compete with markets, where norms for energy efficiency are mandatory.

The first four products to be brought under the scheme on voluntary basis are Air Conditioners (window and split), Refrigerators (Direct cool and frost free), Tubular Fluorescent Lamps (TFLs) and Distribution Transformers. Several manufacturers of these products have joined the scheme, but the aim is to encourage more to join. Since the launch of the scheme, there has been a steady increase in the industry participation, e.g. from 50% to 90% in TFLs, 40% to 80% for Refrigerators and 20% to 80% in air conditioners.

Other products in the pipeline which are scheduled to be included in this scheme are, LPG stoves, Color TVs and Set Top boxes, and Passenger car vehicles, Electric Geysers, CFLs and Ceiling fans. BEE has appointed an Independent Agency for Monitoring and Evaluation (IAME) and for conducting check testing of BEE labeled products. The agency is M/s. RITES Ltd. A couple of independent laboratories have also been for check testing of BEE labeled products. The laboratories are M/s. Intertek Testing Services (I) Pvt. Ltd in New Delhi, and M/s. Electrical Research and Development Association, in Vadodara.

RITES Ltd. has already completed check testing of 27 Refrigerator models, 11 Air conditioner models and 9 models of Tubular Fluorescent Lamps.

Through this scheme, BEE expects to achieve an overall avoided capacity addition of 500 MW during 2007-12. So far, BEE has already achieved savings equivalent to a net avoided capacity addition of 325 MW. This has been possible by getting an avoided capacity addition of 264 MW through BEE labeled Refrigerators, 26 MW through BEE labeled Air Conditioners and 35 MW through BEE labeled TFLs.

In its effort in promoting the S&L scheme, BEE has carried out several initiatives at the manufacturer, retailer and consumer levels.

For the manufacturers and retailers, BEE has conducted 6 workshops across the country, an International conference on Stand-by Power and 11 Retailer training programmes in various cities. Apart from this, BEE has a permanent stall at the PCRA Conservation Technology Center (CTC) for promoting the S&L scheme and BEE has promoted the scheme through the transformer industry for Distribution Transformers.

For the consumers, BEE launched vigorous promoting through print and electronic media (TV ads, website ads and radio). An expenditure of Rs 12.75 crores was projected and spent on awareness through media in the year 2007-08, in the following manner, TV spots - 7 crores, online web - 0.57 crores, cinema - 0.69 crores, Below the line (BTL) - 0.30 crores, Radio - 1.15 crores and Print 3.04 crores. BEE has also launched a Joint Consumer Awareness Campaign along with the Ministry of Consumer Affairs. In this campaign the expenses of the consumer awareness through print and electronic media is co-shared by both the agencies. The Consumer Awareness campaign is in conjunction with the Ministry of Consumer Affairs, Jago Grahak Jago Campaign.

Energy Conservation Building Code

The Energy Conservation Building Code which is popularly known as ECBC was launched on 27 May 2007 by the Hon'ble Minister of Power. This is also a voluntary scheme currently.

The key objective of ECBC is to set minimum energy performance standards for commercial buildings. Under sections 14 (p) of the EC Act 2001, Central Government has the powers to prescribe ECBC for commercial buildings, or building complexes (presently having a connected load of 500KW) for efficient use of energy and its conservation.

The state governments; however have the flexibility to modify the ECBC to suit local or regional requirements.

The plan is to mandate ECBC at a later date, when:

- There are adequate number of architects, builders, contractors having technical capacity to design and implement ECBC norms;
- The compliance procedures have been finalized in consultation with states/municipal agencies;
- Through a successful market transformation programme, there are adequate manufacturing and marketing capabilities and materials required for ECBC complaint buildings;
- Appropriate level of awareness, understanding and education regarding ECBC is developed.

As with other schemes, BEE has taken several initiatives to implement the ECBC scheme.

One key area is to build capacity, create awareness and educate architects and professionals in ECBC norms. BEE has conducted 25 training programmes involving up to 1500 professionals covering various aspects, e.g. building envelop, HVAC, Lighting and building energy simulation. BEE has empanelled a few architects who are experts in ECBC norms to help professionals design buildings under ECBC requirements.

Under the USAID ECO III programme, BEE has developed high quality reference material in the form of Tip Sheets for various aspects of ECBC, e.g. building envelop design, Lighting, HVAC and Energy Simulation. The Energy Assessment Guide for Commercial buildings has also been developed and launched under the USAID ECO III programme.

BEE has facilitated the set up of an association of 20 architectural/engineering colleges to develop courses for energy efficient and sustainable building design. With the Bureau's efforts, an ECBC expert architect has been engaged to provide technical assistance to MH and FW in building 6 AIIMS like institutes, under the Pradhan Mantri Swasthya Yojana (PMSY) which will be ECBC complaint.

The Lal Bahadur Shastri Academy of Administration will be constructing their new building blocks under ECBC complaint norms, with support from BEE.

BEE is supporting the Uttarkhand State Electricity Regulatory Commission to construct an ECBC complaint building in Dehradun. BEE is also supporting the Uttarkhand government to construct a new medical college in Srinagar which will be built under ECBC norms.

An E-source Technology Atlas from Colorado has been distributed among 15 non-profit and government organizations who have expressed commitment towards implementation of ECBC.

An ECBC Programme Committee has been set up under the leadership of DG, BEE. The key objective of

this committee is to facilitate the development of ECBC compliant building design, credible implementation of some demonstration projects and set up compliance and evaluation procedures through an institutional mechanism.

The committee also addresses comments and views from stakeholders like, CPWD, MES, etc. in context of the code and considers ways to incorporate relevant changes in the code. This has led to the launch of a revised edition of the ECBC code.

BEE has hired an external agency for data collection. The role of this agency is to collect data of all ECBC compliant buildings and of all government buildings that have a connected load of 500 KW or more.

Another role of the scheme is to facilitate energy efficiency in all existing buildings. BEE launched a scheme with Gol's approval to carry out an Investment Grade Audit (IGA) of all government buildings in the states. There are 37 Energy Service Companies (ESCOs) that have been empanelled by BEE to implement energy efficiency measures in existing buildings. A retainer consultant has been hired for undertaking the Energy Efficiency Programme in buildings by ESCOs through performance contracting.

During 2007-08, about 320 new buildings have been identified to be ECBC compliant. When completed, they are estimated to result in a net avoided capacity addition of about 300 MW.

Strengthening of State Designated Agencies (SDAs)

State Designated Agencies (SDAs) are statutory bodies set up by states to implement energy conservation measures at state level. SDAs are expected to play 3 key roles:

- Act as a Development Agency
- Act as a Facilitator
- Act as a Regulator/Enforcing body

The main emphasis of the scheme is to build capacity of the SDAs to enable them to discharge regulatory, facilitative and enforcement functions under the EC Act 2001.

This is particularly so, given that the institutional capacity of the SDAs is limited, both in terms of human and infrastructural resources.

The scheme seeks to develop and implement an Energy Conservation Action Plan (ECAP) based on a uniform template evolved for taking measures necessary to build institutional and human capacity for the SDAs. This would enable SDAs to implement energy efficiency programs and to undertake monitoring and evaluation of the energy conservation

activities implemented in the state. ECAPS for 5 years have been developed with the support of National Productivity Council for various states and till date 28 states have completed these.

BEE is reviewing financial proposals submitted by SDAs based on:

- Priority of activities to be initiated from the list of 19 deliverables;
- List of identified buildings for carrying out Investment Grade Energy Audit (IGA);
- Energy Efficient Demonstration Projects with high impact value in large cities like Delhi, Mumbai, Chennai, Kolkata, Hyderabad, Bangalore, etc.

So far 15 states have submitted their proposal for priority of activities for list of 19 deliverables. 306 buildings have been identified for IGA by 19 SDAs; proposals from 16 demonstrated projects on energy efficient street lighting and revamping of drinking water pumping system has been received from SDAs.

The scheme has an approved budget of Rs 49.21 crores in the XI plan. The financial support to SDA will be provided based on an annual action plan submitted on a prescribed template. Disbursement of funds would be made on the basis of releasing 70% of the sanctioned amount initially. The balance 30% would be released after BEE receives the Utilization Certificate (UC) for 50% of the total sanctioned amount. Initial funds to the tune of Rs 7.55 crore have been disbursed to 24 SDAs who had submitted their proposals based on the above criteria (Rs 487.62 lacs against proposal based on 19 deliverable action plan, Rs 321.24 lacs for 306 buildings for IGA and Rs 83.88 lacs for 2 demonstration projects). As of now, 7 SDAs have submitted the Utilization Certificate for 50% of the sanctioned amount and have received the balance 30% of the funding.

The SDAs have reported an avoided capacity addition of 135 MW due to implementation of energy efficiency measures.

BEE has identified National Productivity Council to conduct 2-day familiarization workshops for all SDAs. So far 12 workshops have been completed. BEE has carried out 5 Regional Review Meetings at Chennai, Delhi, Gandhinagar, Guwahati and Kolkata covering all SDAs.

Capacity Building for Industry Professionals

BEE has taken a pro-active role in establishing a proper energy management system in the country.

The Bureau regularly conducts National Level Certification Examinations for Energy Managers and Energy Auditors. So far 6 examinations have already been conducted with up to 4731 people qualifying as Energy Managers and Energy Auditors in the last

5 examinations. The next examination is due to be held in November 2008.

Apart from this, BEE conducts workshops under its Life Long Learning (3L) programme targeted for energy efficiency in Industries. So far 28 such workshops have been conducted targeting various sectors in Industry, e.g. Cement, Automobile, Paper & Pulp, Combined Heat & Power (CHP), CO₂ benchmarking and monitoring in Cement Industry, Fertilizer sector and Textile sector. During the last 2 financial years the participation numbers have increased from 180 in 2006-07 to 713 in 2007-08.

Other Projects

There are several initiatives branded under 'other projects' which BEE is implementing.

Agricultural (Ag DSM) and Municipal (Mu DSM) Demand Side Management Scheme

Ag DSM promises immense opportunity to reduce the overall power consumption and improve efficiency of ground water extraction. It also helps in reducing the subsidy burden of the states without sacrificing the service obligation to this sector. The scheme also provides a promising prospect of targeting subsidy to the beneficiary farmer. Most of the pilot projects as well as other studies have projected a potential savings of 54-50% of electricity by merely replacing inefficient pumps. Through this, the overall electricity savings from 20 million pumps is estimated at 62.1 billion units annually.

Mu DSM also assumes significant savings. The cost of pumping water to its residents constitutes up to 60% - 70% of its overall energy costs for most municipalities. BEE has produced a manual for Mu DSM along with IFC and Alliance to Save Energy. This manual will serve as a guide for municipalities to promote for Municipalities to implement energy efficient programmes for water supply systems, sewerage systems, street lighting, etc.

Under this scheme, a consultant has been hired to evaluate the status of more than 175 municipalities in the country. The report for some has been submitted while for others, it is still awaited.

National Energy Conservation Award

The Award scheme is one of BEE's innovative projects initiated over the last decade. These awards are a means to institutionalize the energy efficiency movement in the country by publicly recognizing energy conservation efforts by various industries and firms.

The scheme has gained popularity over the years by increasing participation (120 in 2000 and 384 in 2007). Apart from 33 sub-sectors from large and

medium scale industries and 3 sub sectors from small scale industries, some more categories from the commercial building sector and zonal railways is also being included, e.g. office buildings, hospitals, hotels, shopping malls, etc. Participating organizations, during 2006-07, invested over Rs 2923 crore in energy conservation projects. These have resulted in financial savings of Rs 1843 crore per year. The fuel savings have been 106 million tons of oil equivalents, and in addition an avoided capacity addition of 236 MW has also been achieved.

Prizes to the first three positions are given away by the President or Prime Minister of the country every year on 14th December - National Energy Conservation Day.

Energy Efficiency in SMEs

The scheme seeks to provide energy efficiency in SMEs. Several energy intensive SME clusters across the country have a large potential for saving energy, even though there is limited reliable data available on the energy consumption and energy savings opportunities in these units. BEE has initiated diagnostic studies of 25 SME clusters and will develop cluster

specific energy saving manuals/booklets. The scheme proposes to provide comprehensive energy saving solutions to these clusters by Conducting energy audits, Preparing DPRs from energy audit studies, Enhance capacities of service providers in each cluster area, Provision of financing for such bankable DPRs, Carry out awareness and outreach programmes.

National Campaign on Energy Conservation

Children are an important target group as well stakeholders for increasing awareness. Therefore the MoP and BEE have introduced this scheme.

Painting competitions are conducted for children of IV and V standards at School, State and National levels. This activity is implemented with the support of CPSU and BEE. So far, across the country, as many as 24,385 schools and 5.25 lakh children have participated in the National Painting Competition.

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