

# **Energy Management Centre Kerala**

## **Bachat Lamp Yojana (BLY)**

### **CDM based CFL programme in Kerala State, India**

#### **Background**

The domestic sector accounts nearly 46% of the electricity demand in the State, which results in a very high electricity demand (peak) during 6.30pm to 10.00 pm. In this, lighting accounts a very high percentage. As per a survey conducted by EMC, the major contributor of lighting in the State is provided by incandescent bulbs, which are extremely energy inefficient. Only about 3- 5% of the electricity is converted into light, the rest is lost as heat. This can be easily replaced with the Compact Fluorescent Lamp (CFL) providing an energy-efficient alternative to the incandescent lamp. A CFL uses only one-fifth as much electricity as an incandescent lamp to provide the same level of illumination. CFLs have almost completely penetrated the commercial market, and the sales of CFLs in India have grown from about 20 million in 2003 to more than 250 million in 2010. However, penetration into households has been very limited, largely because of the high price of the CFLs. The price of CFLs is still in the Rs.80-100 price range, whereas the incandescent bulbs are in the Rs.10-15 price range.

Initiatives to help decrease the price of CFLs to be comparable with that of incandescent bulbs are therefore necessary in order to enhance the penetration of CFLs in households and are a policy goal that has been spelt out in the agreed action points in the meeting of all State Chief Ministers chaired by the Prime Minister of India. As per study conducted by EMC, about 25 million light points in Kerala today are lighted by incandescent bulbs; their replacement by CFLs would lead to a reduction of over 750 MW in electricity demand. This would also reduce emissions by way of efficient end use of electricity. The price barrier, as indicated above, will be overcome by using the CDM revenue stream to enable faster penetration.

## **Project Description**

**“Bachat Lamp Yojana”** seeks to utilize the Clean Development Mechanism (CDM) of the Kyoto Protocol to bring-down the price of CFLs. Bureau of Energy Efficiency, Ministry of Power, Govt. of India has developed the programme and registered with UNFCCC. This public-private partnership between the Government of India, Private sector CFL Manufactures /Traders (Project Developers) and State level Electricity Distribution Companies would provide the framework to distribute high quality CFLs at about Rs.15 per piece to the households of the country. Under the scheme 40W, 60 W and 100 W incandescent Lamps have to be replaced with CFLS having same lumen output.

## **Objectives of the BLY Project**

The basic objectives of the Bachat Lamp Yojana Project are as follows:

- Replace inefficient incandescent bulbs with CFLs for households only
- Reduce price of CFLs
- Use CDM to recover the balance cost
- CERs generated after monitoring, validation and oversight of CDM Executive Board sold in international market
- Potential reduction in power consumption (500 – 750 MW)

## **Basic outline of the BLY Project**

The major components of the Bachat Lamp Yojana Project are as follows:

- Replace inefficient incandescent bulbs with CFLs
- 14/15 watt CFL cab replace 60 watt incandescent bulb
- 80 % energy savings without compromising lumen intensity
- Energy savings per CFL will be 110 Kwh annually – 0.09 Tonnes of CO<sub>2</sub> (5 hour usage/day)
- 25 million light points presently estimated on incandescent bulbs could reduce energy consumption up to 750 MW
- CFL supplier must make arrangements for buy back of fused bulbs and their safe disposal.

- The project is to be implemented through a tripartite agreement between Bureau of Energy Efficiency (BEE), Power Distribution Company and the CFL Manufacturer/Trader

### **Implementation of the BLY Project**

As mentioned above the BLY project is to be implemented through a tripartite agreement between Bureau of Energy Efficiency (BEE), Power Distribution Company of different states and the CFL Manufacturer/Trader. The Bureau of Energy Efficiency (BEE), being the statutory body set up under the Energy Conservation Act, 2001 by the Government of India, will coordinate the Small-Scale Programme of Activities (SSC-PoA) and will facilitate implementation of the programme in various States through their respective Electricity Distribution Companies (DISCOMs) with the assistance of the CFL suppliers. Further, BEE on behalf of the Government of India will take the responsibility of monitoring of all project areas after the DISCOMs and the CFL suppliers have entered into a tripartite agreement (TPA) with BEE. The specific roles of each of the three parties during the implementation of the project would be as follows:

### **Role and Responsibility of BEE**

- Extensive awareness and information campaign in association with DISCOMs.
- Development of Small-Scale Programme of Activities Design Document (SSC-PoA-DD).
- Registration of the SSC-PoA with UNFCCC CDM Executive Board.
- Managing the monitoring of lighting appliance utilization hours within the PSG households using an approved small scale methodology of the UNFCCC (EB) and analysis of the monitored data.
- Supporting the CFL suppliers/ DISCOMs to prepare SSC-CPA-DDs.
- Inclusion of SSC-CPAs to the SSC-PoA upon satisfaction of the eligibility criteria stipulated in the SSC-PoA-DD.
- Official communication with the CDM-EB, DOE and Indian DNA.
- Allocation of CERs to the CFL suppliers/ DISCOMs according to their share in emissions reductions in a specified period.

## **Role and Responsibility of Power Distribution Company of the Project Area**

- Define geographic boundary of customer area of a DISCOM.
- Define a residential household based on State level definition and tariff category.
- Prepare database of all grid connected residential households to include name of users/ address/ average annual electricity consumption for each SSC-CPA project area
- Assist in selection of Project sample group (PSG), Project sample buffer group (PSBG), Project cross-check group (PCCG).
- Safe storage of replaced ILBs for independent inspection by a DOE and disposal.

## **Role and Responsibility of CFL Manufacturers and Traders**

- Providing CFLs with lumen output +/- 10% of the baseline ie (lumen output of 100 Watt & 60 Watt ) Incandescent Lamps at price comparable to those of Incandescent Lamps (ie Rs 15), in exchange for functioning Incandescent Lamps that are currently being used in the households. A maximum of 2 CFLs shall be replaced per household. These CFLs shall carry a warranty of at least 1 Year and would be compliant with IS: 15111 Part 1 & Part 2 or any other equivalent international standard , subject to the condition that the product is under testing at a NABL for proving its compliance with the above Indian Standard .
- Collection of fused CFLs through buy-back schemes, and arrangements for their safe disposal as per the Guidelines on Safe handling and management of mercury in the FL sector set by Ministry of Environment and forest Govt. of India.
- Pre-project survey to estimate the annual electricity saving potential in a selected SSC-CPA area.
- Distribution of CFLs in association with DISCOM within its customer area.
- Securing financing of initial investment for the cost differential

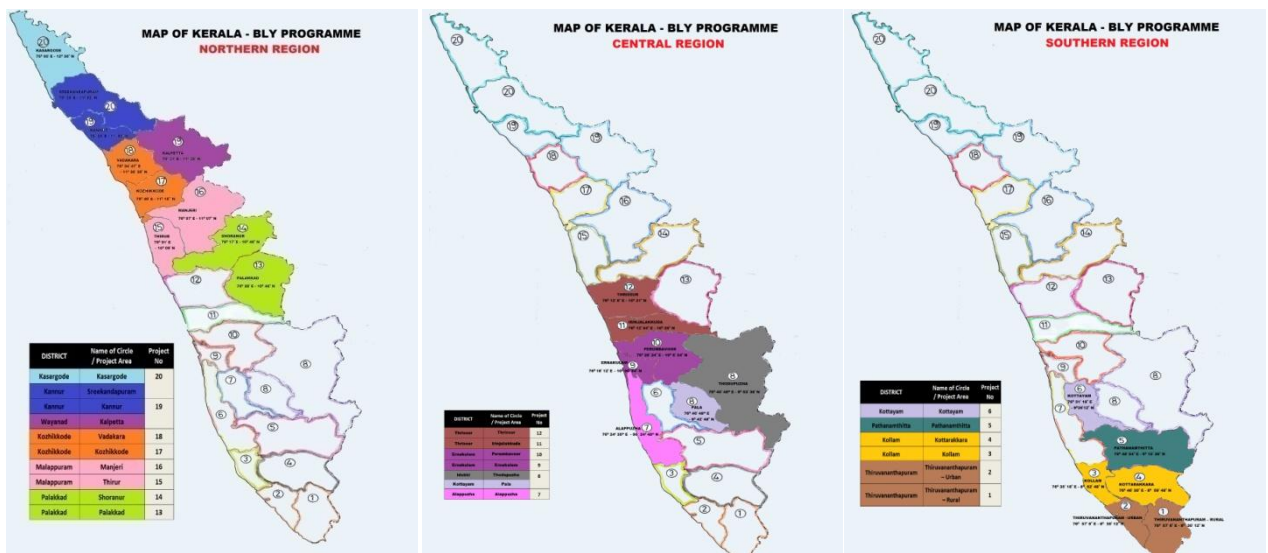
- Free replacement of distributed CFLs which fuse within 1 years of usage during the life of the SSC-CPA.
- Preparing CDM Small-Scale Programme Activity Design Documents (SSC-CPA-DDs) for their CDM Small-Scale Programme Activity (SSC-CPA) and submitting it to BEE.
- Getting the SSC-CPA –PDD validated by a Designated Operational Entity of CDM Executive Board.
- Getting the SSC-CPA –PDD registered with the UNFCCC.

### ICL Vs CFL

Baseline ICL Replaced	Rated normal Lumen output	CFL range
<b>25W</b>	220	5-7 W
<b>40W</b>	345	9-10 W
<b>60W</b>	620	13-15 W
<b>100W</b>	1240	20-23 W

### Project Area

The area covered under the scheme is the entire state of Kerala having 23 Electrical division of KSEB. The domestic consumer strength of KSEB is around 77 Lakhs. As per survey, it is noted that 20% of the households has 100% CFL penetration. Considering the addition of new connections and failure of some CFLs in the 100% CFL penetrated houses, it was decided to procure 1.5 Cr. CFL.



**Total number of CFLs distributed under the BLY scheme**

	Name of Electrical Circle/ District	Number of Consumers as on 31.12.09	Number of CFLs distributed
1	Trivandrum ( Rural ) / Trivandrum	383480	695766
2	Trivandrum ( Urban ) / Trivandrum	462570	701502
3	Kollam /Kollam	350093	598590
4	Kottarakkara /Kollam	308227	531908
5	Pathanamthitta / Pathanamthitta	324684	500792
6	Kottayam / Kottayam	307953	499920
7	Allappuzha/ Allappuzha	540400	860766
8	Thodupuzha /Idukki	239087	433020
9	Pala / Kottayam	183577	296168
10	Ernakulam / Ernakulam	354744	453620
11	Perumbavoor / Ernakulam	480957	792154
12	Irinjalakkuda / Thrissur	343280	586696
13	Thrissur / Thrissur	417237	678935
14	Palakkad / Palakkad	341228	602614
15	Shoranur / Palakkad	262979	458382
16	Tirur/ Malappuram	351827	550200
17	Manjeri / Malappuram	411313	732424
18	Kalpetta / Wyanad	161304	285338
19	Kozhikode / Kozhikode	412132	682158
20	Vadakara / Kozhikode	261025	489712
21	Kannur / Kannur	303639	515135
22	Sreekandapuram / Kannur	248228	412138
23	Kasargode / Kasargode	259727	435602
	<b>Total</b>	<b>7709691</b>	<b>12793540</b>

## Date of registration of project in UNFCCC

	Name of project area/District	Date of registration in UNFCCC	Project id
1	Trivandrum ( Rural ) / Trivandrum	26 April 2011	3223-0002
2	Trivandrum ( Urban ) / Trivandrum	06 May 2011	3223-0003
3	Kollam / Kollam	06 May 2011	3223-0007
4	Kottarakkara / Kollam	06 May 2011	3223-0006
5	Pathanamthitta / Pathanamthitta	06 May 2011	3223-0004
6	Kottayam / Kottayam	06 May 2011	3223-0005
7	Allappuzha/ Allappuzha	06 May 2011	3223-0021
8	Thodupuzha /Idukki & Pala/Kottayam	06 May 2011	3223-0019
9	Ernakulam / Ernakulam	06 May 2011	3223-0017
10	Perumbavoor / Ernakulam	06 May 2011	3223-0020
11	Irinjalakkuda / Thrissur	06 May 2011	3223-0018
12	Thrissur / Thrissur	06 May 2011	3223-0016
13	Palakkad / Palakkad	06 May 2011	3223-0008
14	Shoranur / Palakkad	06 May 2011	3223-0009
15	Tirur/ Malappuram	06 May 2011	3223-0010
16	Manjeri / Malappuram	06 May 2011	3223-0011
17	Kozhikode / Kozhikode	06 May 2011	3223-0013
18	Vadakara / Kozhikode	06 May 2011	3223-0014
19	Kannur / Kannur & Kalpetta / Wyanad	06 May 2011	3223-0012
20	Sreekandapuram / Kannur & Kasargode / Kasargode	06 May 2011	3223-0015

Designated Operational Entity (DoE)

M/s TUV SUD INDUSTRIE SERVICE GMBH

