

**A STUDY ON ELECTRICITY ENERGY  
CONSERVATION PROGRAM**

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**ELECTRICITY ENERGY CONSERVATION PROGRAM**

**ABSTRACT:**

The present study was conducted in Delhi, Hariyana&Nashik in Maharashtra. Energy conservation progra installation of CFL(Compact fluorescent lamp) for the state of Maharashtra and wages of Electronic Ballast chokes for tube light instead of conventional chokes. The major advantage shall be drawn saving for energy bills for consumer. Approximately 300 lacks CFLs used across the Maharashtra state in India i.e. 15w CFL & 20w CFL

Advertising marketing & awareness complain for the use of CFL technology, sale of CFL to eligible consumer. The manufacturare will offer a special price for those consumer who prefer to purchase CFL lamp out right i.e. Rs.100/-for 15w CFL and Rs.110/- for 20w CFL. The Procedure for installment & for invoicing scheme will be very company to company. If period of the scheme will be considered for 2 year. Overall marketing practices of CFL grower reveal that 63% of the CFL grower belongs to medium level of marketing practices category. land holding, annual income, cosmopoliteness & infrastructure facilities were positively significant relationship with marketing practices.

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**INTRODUCTION:**

An efficient making of CFL plays an important role to increase the producer share in the consumer rupee. Presently the CFL marketing is mainly in the hand of middleman like city, village merchant, commission agents etc the producer is only a price receiver. Therefore many times CFL producers have to restart to distress sale due to uncertain situation in marketing of CFL within background the present study is taken up to analyze the existing marketing practices followed by CFL growers and to know the source of flow of market information.

**OBJECTIVE OF THE STUDY:**

1. To study the marketing practices of the CFL growers.
2. To know their source flow of market information saving for energy bills for consumers and saving of electricity.

Energy conservation program installation of CFL (compact fluorescent lamp for the state of Maharashtra and wage of electronic Ballast chokes for tube lights of instead of conventional chokes.

**Company Advantage of compact fluorescent lamp:**

Briefly 40 W GLS bulb consumes one unit in 25 hours but 11 WCFL Consumer 1 unit only after 91 hours and at the same time provides approx the same lumens. The following major advantages shall be drawn.

- 1) Saving for Energy bills for consumers.
- 2) Reduction in system peak demand (MW)
- 3) Reduction in power purchase
- 4) Reduction in line losses.
- 5) Energy conservation.

**Programme coverage:**

The CFL lighting program shall be done across the state of Maharashtra and is expected to penetrate approximately 300 lacks CFLs to the Company consumers across the state. As well as Nasik city also.

**Identified Agencies:**

The Agencies identified were M/S Asian Ltd, Osram Ltd. And M/S phoenix Ltd. All the three agencies are involved in the CFL pilot project and the lowest offered rate as per the price bid were Rs 100/-for 15 W CFL and Rs 110 for 20 WCFL on the direct sale basis and Rs 125/- on installment basis.

**DIRECT SALES GUIDELINES:**

The manufacture will offer a “Special price” for those consumers who prefer to purchase CFL lamps outright i.e. Rs 100/-for 15 W CFL and Rs 110/- for 20 W CFL. The manufacturer’s obligations are as follows.

- 1) Offer CFLs that meet the MELP programme. Technical specification criteria.
- 2) Offer a warranty on the CFLS purchased Under the MELP programme at least for a period of one year.
- 3) All lamps sold under MELP (Maharastra Efficent Lighting Programme) programme, shall have a Unique bar code or seal for identification with the programme for warranty obligation.
- 4) Manufacturer shall furnish the sales Figures of all direct sales Under the MELP programme to company.

**Instalment Scheme:**

The procedure for instalment scheme will be as follows.

- 1) When the MELP programme is running a period of one billing cycle the consumers can get the eligible for participation in ‘MELP” certification / stamp when he/ she pays the latest electricity bill at the sub Divisional level or cash collection counter.
- 2) The consumer should go to sub division office for certification for the purchase of the CFLs.
- 3) The consumer will produce the coupon at CFL Distribution centre. Which will be at Company collection centres. After verification of coupon and last bill paid and on signing of agreement, Maximum 5 or 6 No’s CFL’s will be offered to the consumers.
- 4) The consumer will be free to choose the brand of the CFL, but will not be allowed to choose multiple brands due to invoicing problem. The consumer will be required to provide identity

such as Driving License, Ration card or Election card, which shall corresponds to the name in the electricity bill for issue of lamps to the tenants an authorization is required from the Land lord.

**Procedure for invoicing:**

- 1) The manufacture will collect all the purchase agreement / coupons and will submit invoices for the specified period for verification and processing for payments to Company circle office. The circle office shall further forward the same duly verified to the Head office of the special project cell for approval and payments.
- 2) Company programme administrator will also examine the purchase agreement by each sub Division and submit this to respective sub Division for inclusion in the electricity bill.

**Procedure for lamp replacement under warranty:**

Under the agreement with the Company the manufacture have an obligation to honour the warranty on the CFL purchased under this programme both for direct purchase and purchase under the instalment scheme. The procedure for lamp replacement is as follows.

The consumer will be required to return the failed lamps to the authorized retail store of the manufacture with original receipt as proof of purchase.

The Retailer will replace the lamp and will mark on the original receipt confirming the issue of lamp and the date. The retailer will keep a record of the replaced lamps and provide this information to the Company on regular intervals.

**Role of Company:**

The entire program shall be monitored and coordinated by any Company for mutually agreed terms & conditions with the agencies involved. The third party evaluation for establishing the energy savings if required shall be appointed by Company.

**Role of Manufactures:**

The role involves providing the CFLs complying the technical specification, furnishing the required warranty, co-ordinate with dealers on lamp. Sales, submission of invoices to Company, advertising, marketing and awareness campaign for the use of CFL technology, sale of CFL to eligible consumers, providing slaes documentation to distributors / Company / Consumer etc.

**SALIENT FEATURES:**

SR.NO	Particular	Details
1	Name of the scheme	Installation of CFL lamps in Maharashtra state.
2	Period of the Scheme	Two years
3	Name of Location in Maharashtra where scheme is to be implemented	Across the state of Maharashtra.
4	No. of CFL of 15 watt to be procured	1.5crores Nos.
5.	No. of CFL of 20 watt to be procured	1.5crores Nos.
6	Cost of 15 watt CFL	Rs 100/-per Unit
7	Cost of 20 watt CFL	Rs 110/- per Unit
8	Total Cost	Rs .315/- cores.
9	Savings in MW Demand	975 MW
10	Savings in Rupee (per month)	Rs.37.44/- cores.

Savings In Mw Demand & Commercial Saving

**Savings in MW Demand:**

Sr. no	Particulars	M W Demand
1	Load of GLS lamp 1.5 crore X 40 watt 1.5 crore X 60 watt Total	=600 MW =900MW 1500
2.	Load of CFL lamp 1.5 crore X 15 watt 1.5 crore X 20 watt Total	=225 MW =300MW =525
	<b>Difference in MW Demand</b>	1500-525MW =975

Hence load reduction during peak hours will be 975 MW

**Commercial savings:**

SR.NO	Particular	Details
1	No of 40 watt bulbs to be replaced by CFL	1.5 CroreNos
2	Total energy consumed for 8 hours by 1.5 coreNo's of 40 watt bulbs per month i.e.	=(40X15000000x8x30) =144 MUS
3	Energy consumed by 15 watt CFL per month	=(15X15000000x8x30) =54 MUS
4	Total energy consumed for 8 hours by 1.5 core Nos. of 60 watt bulbs per month i.e.	=(60X15000000x8x30) =216 MUS
5.	Energy consumed by 20 watt CFL per month	=(20X15000000x8x30) =72 MUS
	Total units consumed by ( 40 watts and 60 watts GLS lamps)	144+216=360 MUS
	Total units consumed by ( 15 watts and 20 watts GLS lamps)	54+72=126 MUS
	Total unit saved per month is equal to 360-126	=234 MUS

Out of above, 234 MUS the 50% i.e. 117 MUS will be saved during peak hours i.e. evening peak of 18.00 hrs to 22.00 hrs. The average cost of supply is approx. Rs 3.20 /- Hence is savings through the implementation of this programme computed is approx.

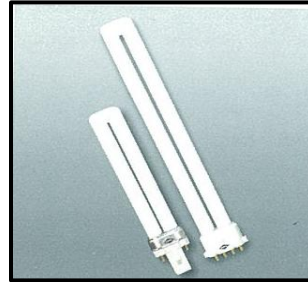
$$117 \times 3.20 = \text{Rs } 3744/- \text{ LAKHS per months}$$

**HPL – Procelain Fuse**

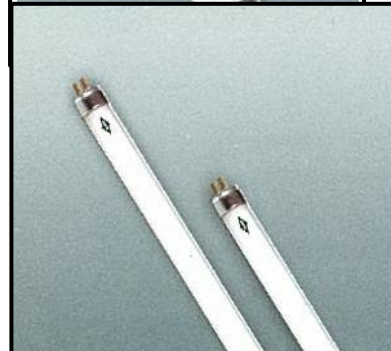
- Range 16-320 Amps
- Carrier Suitable for cartridge type HRC Fuse links
- Carrier fitted with tinned copper fuse wire & fuse holder.
- Can be provided with extended terminal on demand

**Regular Retrofit (T4)**

- Compact lamp with inbuilt electronic control gear.
- Single ended with B22d & E27 bases.
- Available in colours 6500, 4000 & 2700°K
- Range in 11W, 15W, 20W, 23W & 25W
- Ideal replacement for normal GLS bulb.
- Flicker free instant start.
- Six times more life than the normal GLS bulb.
- High luminous efficacy and excellent colour rendering.

**T5-Fluorescent Tube Light**

- Extra slim fluorescent tube light.
- Available in colours 6500, 4000 & 2700°K.
- Range in 14 W, 21W & 28W.
- Rated life more than 20000hrs.
- Least light depreciation during its life span
- High luminous efficacy and excellent colour rendering.

**Domestic & Industrial Wire**

- Range : Available in FR/FRLS/HR/ZHFR insulation
- Confirms to IS 694/1990
- Electrolytic grade over 100% pure copper
- Bunching of copper in uniform lay & diameter
- Double insulation with ultra thin Layer

#### 5.4 Energy Conservation Program For State Of Maharashtra Usage Of Electronic Ballast Chokes For Tube Lights Instead Of Conventional Chokes:

According to the Company has taken up the energy conservation campaign by initiating the issue of electronic ballast chokes for tube lights instead of conventional chokes. The following is the brief comparison between electronic ballast 40 W tube lights and the conventional 40 W tube lights.

### Performance comparison

Parameter	Copper choke	Electronic Ballast choke
Voltage V	240	240
Current MA	437	154
Cons. W	60.04	35.7
Cons.VA	105.1	37.1
Power Factor	0.57	0.96
LUX at room condition	1050	1635

From the above it could be seen that the wattage consumption required for Electronic Ballast chokes is 35 W only as against the 60 W for the conventional tube lights and at the same time with the improved power factor.

Further this project implemented on pilot basis for Nasik City where in the observations recorded for 39 No's tube lights are as given below.

### Readings of Various Parameters

Sr.no	Parameter	Readings with conventional magnetic choke	Reading with replacement by Energy Efficient choke	Remarks
1	Voltage	<b>233.00V</b>	<b>230.0V</b>	
2	Current drawn	12.585 A	5.806 A	Reduced by 46.13 %
3	Wattage (39 Tube light)	1697.00 W	1272.70 W	Savings of 33.41%
4	V A Demand	2890.0	1322.1	Reduced by 45.74%
5	Power Factor	0.576	0.962	Improved near to unity
6	Time duration to record one unit	33 Minutes (06/08/2005)	48 Minutes (08.08.2005)	15 Minutes more time to register one unit power consumption



From the above it could be seen that the major parameters towards the power consumption i.e. current drawn, wattage, VA Demand etc. have been drastically reduced with the improved power factor by the usage of electronic Ballast choke.

Now the program is to be implemented across the state. The major advantages of use of Electronic Ballast chokes are as below.

1. Reduced demand
2. Instant Start
3. Non-pollution
4. Light weight
5. Reduction of loss.
6. Increase in revenue
7. Benefit to the consumer due to lower electricity bills
8. Improved supply quality due to increase in power factor

M/S krepaa steel Industries, Nasik has carried out the studies and thereby saving through usage of Electronic Ballast chokes for the state of Maharashtra. The results of the studies are claiming the savings of 1000 MW in the Power Distribution system with the use of Electronic Ballast chokes. The study results were also for awarded to the Hon'ble Minister of Energy on dtd 8.1.2008 by M/S krepaa steel from the various results submitted and pre linearly based on the cost benefit analysis, the savings to the extent of 35 % to 40% is assured with the use of Electronic Ballast Chokes.

#### **The role of Company:**

Company shall act as facilitator only and shall arrange to find out the reputed and quality manufacturers for providing quality Electronic Ballast chokes. It is again to reiterate that the company shall borne no expenditure what so ever for the said work. The consumer shall be free to opt for the installation of Electronic Ballast chokes through direct.

Purchase and on instalment basis Incase of direct purchase the consumer shall pay the charges of Electronic Ballast chokes at the collection censer of company only and further the same shall be receipt of invoices to the company.

Estimated savings Analysis:

**Annexure "A"**

**Estimated Savings Analysis**

Sr.n.	Particulars		Esisting load with magnetic chokw(W)	Revised load with Electronic choke (w)	Difference (W/MW)
1	Approximate Number of Power Distribution consumers for metro cities/ district head quarters/towns etc.	25 lakhs	-	-	-
2	Average 4 Nos of fittings' for electronic choke per consumer	1 core			
3	Energy consumption each		55.0	35.0	20.00
4	Total Energy consumption	MW	550.0	350.0	200.0MW

It is estimated that with the use of electronic ballast chokes for 25 lakhs consumers, 200 MW energy shall be saved.

**CONCLUSION:**

It can be concluded that some manufacturer CFL are grading their produce before taking to the market. Hence this calls for proper utilization by the consumer to create awareness about importance of grading and use them. They should involve the consumer in each and every manufacturer of CFL activity in local vicinity increase the number of programmer in the area. The official should develop and maintain good rapport with all the CFL consumers .

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