WELCOME

Introduction

Crisis of electricity is a regular phenomenon in our country. It brings untold suffering to the people and affects their quality of life.

The government has adopted many means to ease the crisis and mitigate the suffering . But it requires a large amount of money and time for total and complete redress of the problem. However there is room for alternative approach to the problem, that is, to minimize the usage of electricity load.

The first step should be to create awareness among people to stop wastage of electricity and then motivate to save some. Extensive use of compact fluorescent lamps (CFL) in place of incandescent bulbs (IB) and electronic ballast (IB) in place of magnetic ballast (MB) is one such way.

Save Energy...

Use Energy Saving Lamp

What is CFL?

CFL is a compact form of fluorescent lamp that ensures 80% of energy saving compared to equivalent light output of conventional incandescent lamp.

CFL is a kind of Energy Efficient Lamp which gives us required lumen by consuming fewer watts.

Incandescent Lamp

Compact Florescent Lamp
(Energy Saving Lamp)

Features of CFL

80% ENERGY COST SAVING:

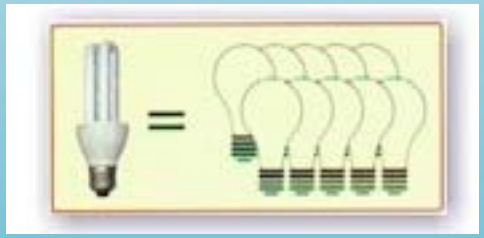
CFL consumes about one fifth energy compared to incandescent bulbs while the brightness remains the same. Reducing energy expenses for lighting up to 80%.

A dollar you save is as good as a dollar you earn.

Features of CFL

LONG LASTING 10,000 HOURS:

CFL bulbs last 10 times longer that is 10,000 hours compared to incandescent bulb which has average life length of 1000 hours. It has improved efficiency and drastically reduces the troublesome task of bulb replacements.



COMPACT SIZE & LIGHT WEIGHT :

Comparing a old Radio with today's transistor Radio, 'Thanks to our advanced technology ballast, featuring a small choke coil, power transistor and capacitors make the bulbs very compact in size and lightweight.

Components

BULB TECHNOLOGY DIAGNOSIS

(1) Glass Tube

(2) PTC Thermistor for instant flicker free starting

(3) Radio interference suppressor

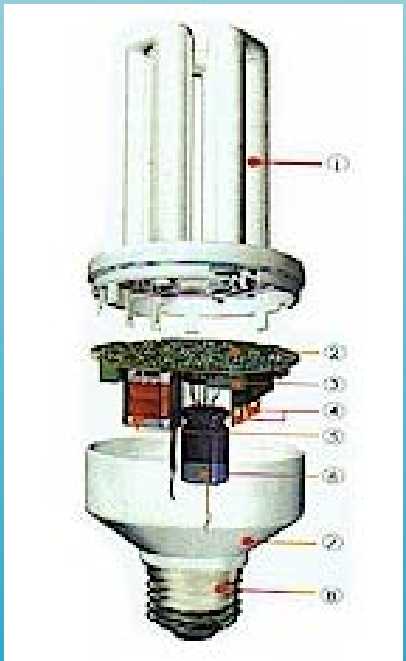
(4) Switching transistors

(5) Lamp current stabilizer

(6) Electrolytic Capacitor for flicker free operation

(7) Fire retardant PBT body housing

(8) Nickel plated Brass base

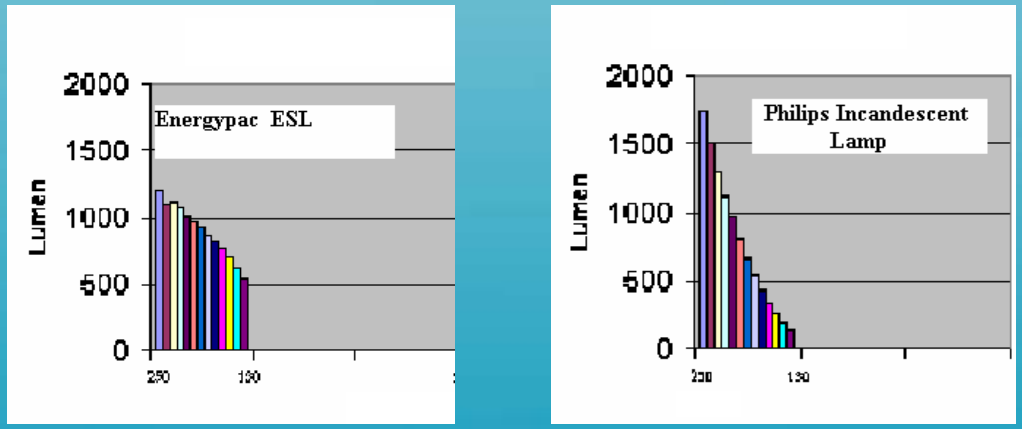


CFL Specification

Parameters	Standard Value
Luminous Efficiency	> 50 Lm / Watt
Power factor	> 0.5 Leading
% of Saving	> 80%
Long Lasting	10,000 Burning hours
Operates at a voltage range	150V – 250V
Color Rendering Index	> 80%
Initial Lumen	> 80% of Steady state Lumen

Wide Voltage Operation Range

- Can normally work within a voltage range of 150V-250V or even lower than that.
- CFL keeps lumen output almost same with voltage variation



Lumen Variation Against Voltage Fluctuation

Comparison with incandescent lamps

SL. No.	Parameters	CFL	Incandescent
1	Luminous Efficiency Lumen/ watt	50	11
2	Life Time (in burning hour)	10,000	1,000
3	Energy cost or 10,000 burning hour @ BDT 2.50 / kwh	575	2500
4	Purchase cost for 10,000 burning hour	250	200
5	Operation cost (3+4)	825	2700

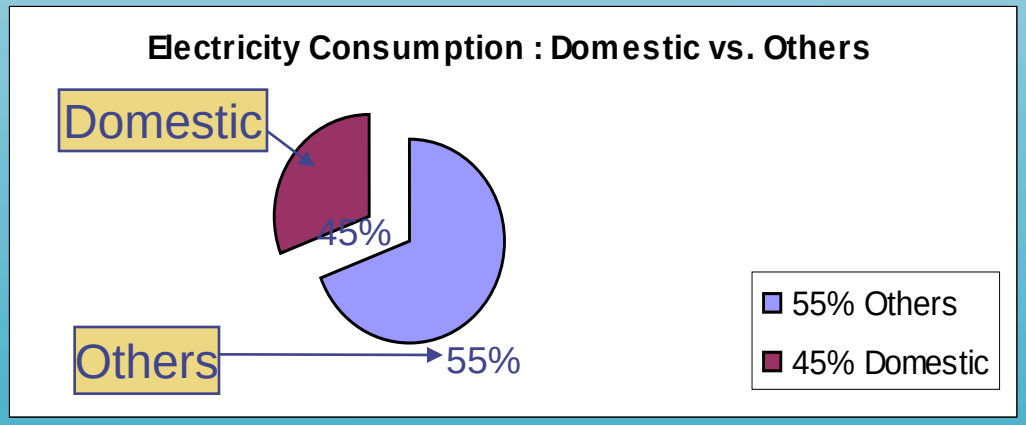
Saving with CFL Bulb

- Net Saving for 10,000 Hour = BDT 1875
- Yearly Saving (Considering 3000 Hour/year) = BDT 625
- Monthly Saving = BDT 52
- Investment return = 4.80 months (Approx.)

CFL:

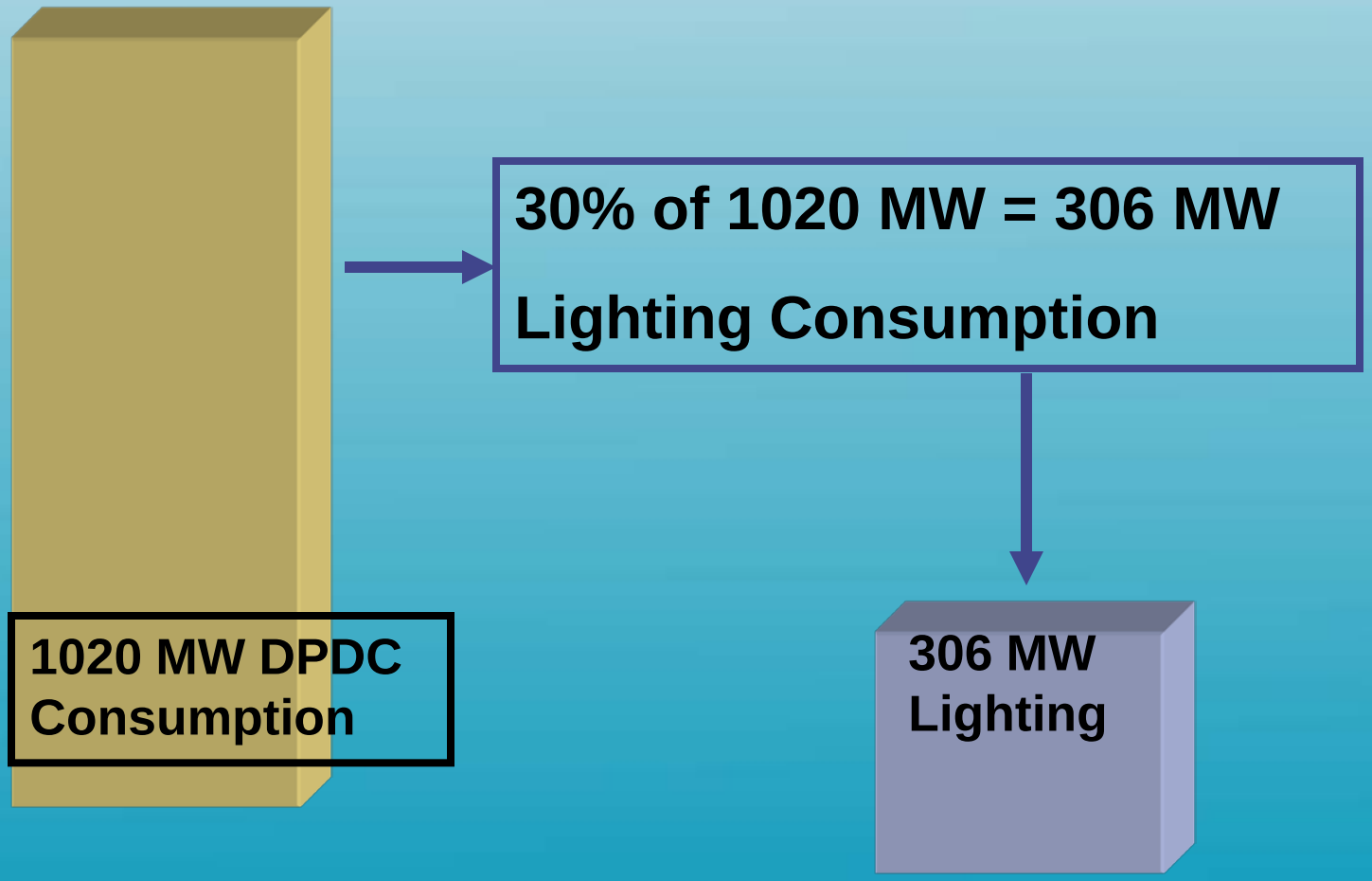
- Standard Warranty = 1 year
- Payback = 4.80 months (Approx.)
- Net Saving (Per Year) = BDT 375
- Investment gain on BDT 250 = 150%

Electricity Consumption in DPDC

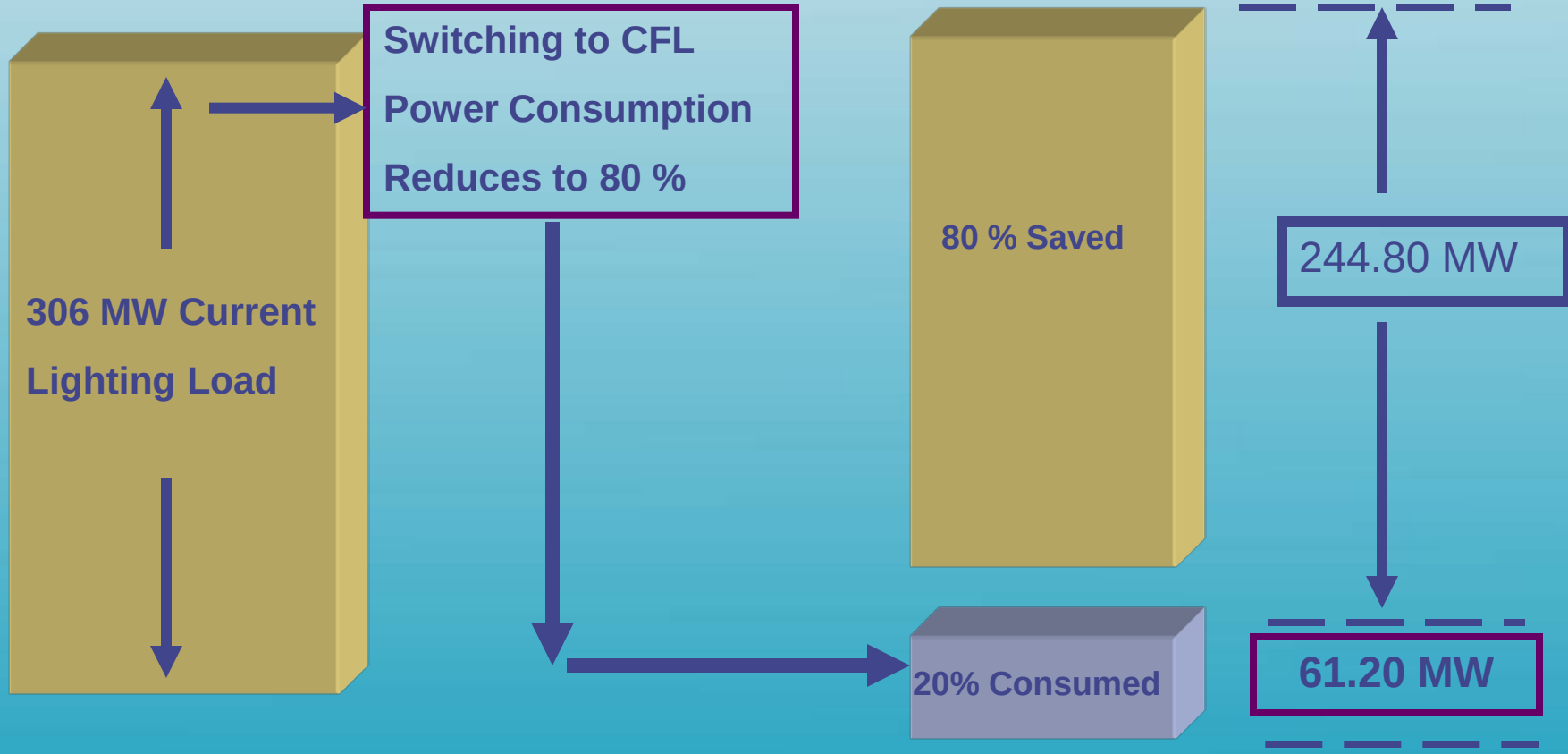


Anticipated

DPDC Saving

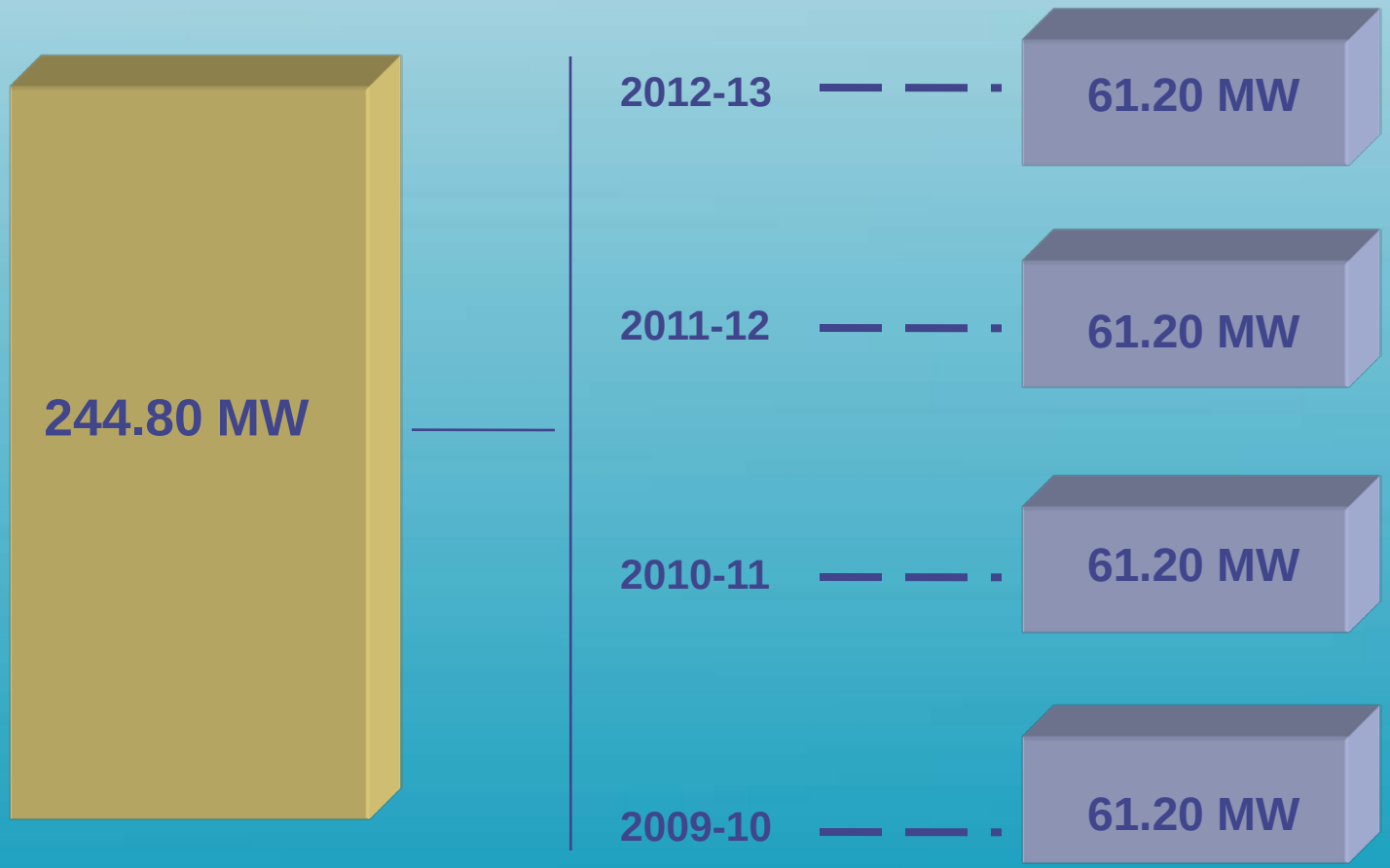


It reduces the peak load


306 MW Current
Lighting Load
Switching to CFL
Power Consumption
Reduces to 80 %
80 % Saved
20% Consumed
244.80 MW
61.20 MW

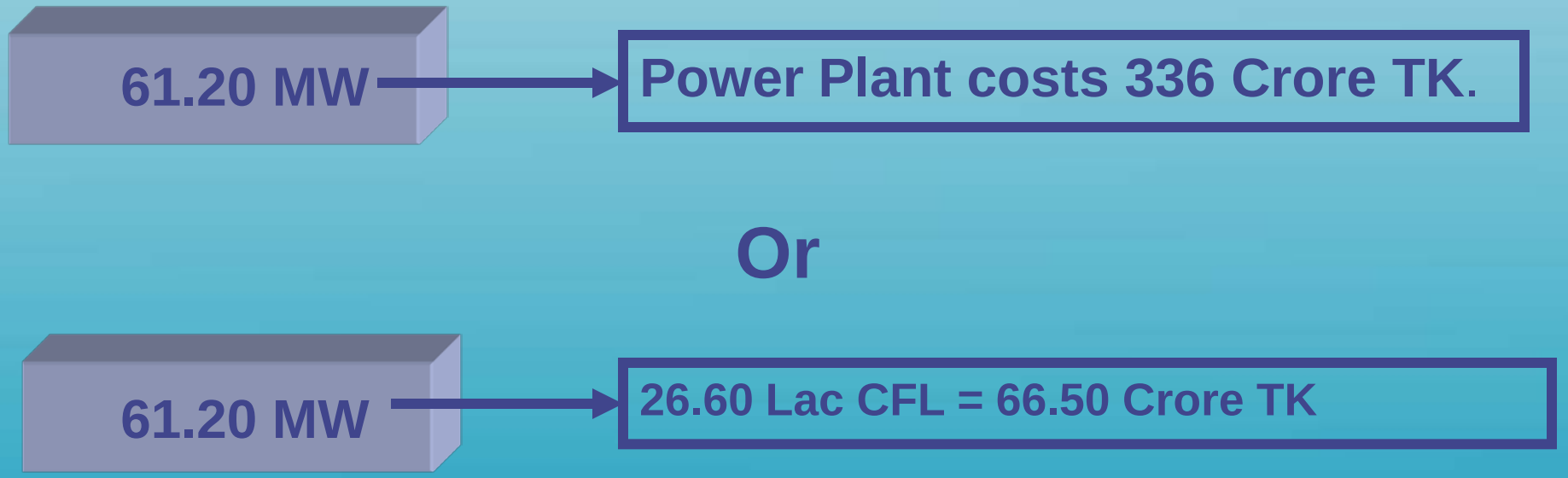
DPDC Saving

Four years DPDC Saving Plan



DPDC Saving

Savings under DPDC



DPDC Saving

National Savings:

Total Power Consumption	: 1020 MW
Power Requirement for Lighting Purpose (30%)	: 306 MW
Power saving possibility through Using CFL (80%)	: 244.80 MW
Power saving in 1 year time frame	: 61.20 MW

(Considering 25% coverage of the total energy saving per year)

Required number of energy saving Lamps (CFL) (to save 240 MW electricity)	: 2,660,000 pcs (Approx.)
Total cost for lamps required to save 61.20MW	: BDT 665,000,000
Power Generation Cost per MW	: BDT 55,000,000
Power installation cost for 61.20 MW	: BDT 3,360,000,000

Recommendation:

So, if we use CFLs BDT 66.50 Crore, we are spared of installing a power plant costing BDT 336 Crore for the lighting purpose.

DPDC Saving

269.50 Crore TK / year (Approx.)

Environment Friendly

Environmental Benefits:

Less energy consumption means less energy generation. Each energy saving lamp (CFL) prevents production of 100kg of CO2. Energy saving lamp (CFL) using less energy means less CO2 emissions, a small relief to global warming and air pollution.

Environment Friendly

Environmental Benefit Calculation:

Current price for CO2 in international market	: 10 USD or BDT 700
Prevention of CO2 emission through using 2660000 pcs of CFL	: 266,000 MT
CO2 trade benefit (Total)	: BDT 186,200,000
Per Lamp CO2 trading benefit	**: BDT 70**

Lighting load survey result of Gulbag & Mouchak 11 kW O/H of feeder of NOCS Rajarbag unit

Total No: Consumer's of the feeders: 10059

No. of Consumer surveyed= 6980. As percentage of total= 69.39 %

The total no. of lighting points 47980

No. of Incandescent bulbs, Tube lights and CFLs and their percentage of the total:

100 W	:	5370;	11.92%
60 W	:	11690;	24.36%
40 W	:	5730;	11.94%
Tube lights (TL)	:	21300;	45.64%
Incandescent bulbs (IB)	:	48.22%	
CFLs	:	6.79%	

The average number of lighting instruments per consumer=6.9.

All 60 W bulbs are to be replaced by 23 W CFL.

Expected saving in capacity after completion of the GTZ- funded Project.

For100W IB to be replaced by 23W CFL

[100W – 23W] x 5500 = 77W x 5500 =423.50 KW

For 60W IB to be replaced by 23W CFL

[60W – 23W] x 12000 = 37W x 12000= 444.50 KW

For 40W IB to be replaced by 14W CFL

[40W – 14W] x 6000 = 26W x 6000=156.0 KW

For 45W TL with MB to be replaced with EB

[45W – 30W] x 22000 = 15W x220500 = 330.00 KW

Total expected saving = 1353 kW.

Assuming a diversity factor, d = 0.75, which takes into account that not all lighting instruments are put on at the same time at the consumers' premises. Actual expected saving = 0.75 x 1353 KW = 1014 KW $\cong$ 1 MW.

So, we reduce 1 MW of load that costs Tk. 6.0 crore to generate, taka 3.5 crore to transmit and taka 1.5 crore to distribute, that is taka 11.0 crore in all by investing taka 1.08 crore only.

Why we need to go for CFLs & EBs

* It will reduce load in the DPDC area to the extent of 100 MW approximately in monetary terms which is valued at Taka 1100 crore.

* The reduction of load will take place during the peak hours which will bring down the difference between peak and off peak load.It is a highly desirable aspect so far as system capacity utilization is concerned.

.* The consumers will pay a reduced bill.

* It will reduce technical system loss due to reduced flow of current in the conductors

* The amount of load shedding will be reduced to some extent

* If implemented in a large scale in a programmatic but effective way DPDC may obtain considerable amount of money from carbon fund

THANK YOU