

# Energy Conservation Measures in Government Buildings

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Alternative Fuels and Energy Efficiency Sector  
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# Human Enhanced Greenhouse Effect



# How does the Philippines Respond

Inter–Agency Committee on Climate Change (IACCC)  
**Presidential Order 220 in 1991**

Clean Air Act  
**Republic Act 8749**

Climate Change Commission  
**Republic Act 9729**



# Earth Hour Campaign

Energy Savings and Equivalent

**Carbon Dioxide** Avoidance

<b>2010</b>	<b>606 MW</b>	<b>252.50 tons</b>
<b>2011</b>	<b>428.83 MW</b>	<b>178.68 tons</b>
<b>2012</b>	<b>362 MW</b>	<b>150.83 tons</b>
<b>2015</b>	<b>229.93 MW</b>	<b>95.80 tons</b>



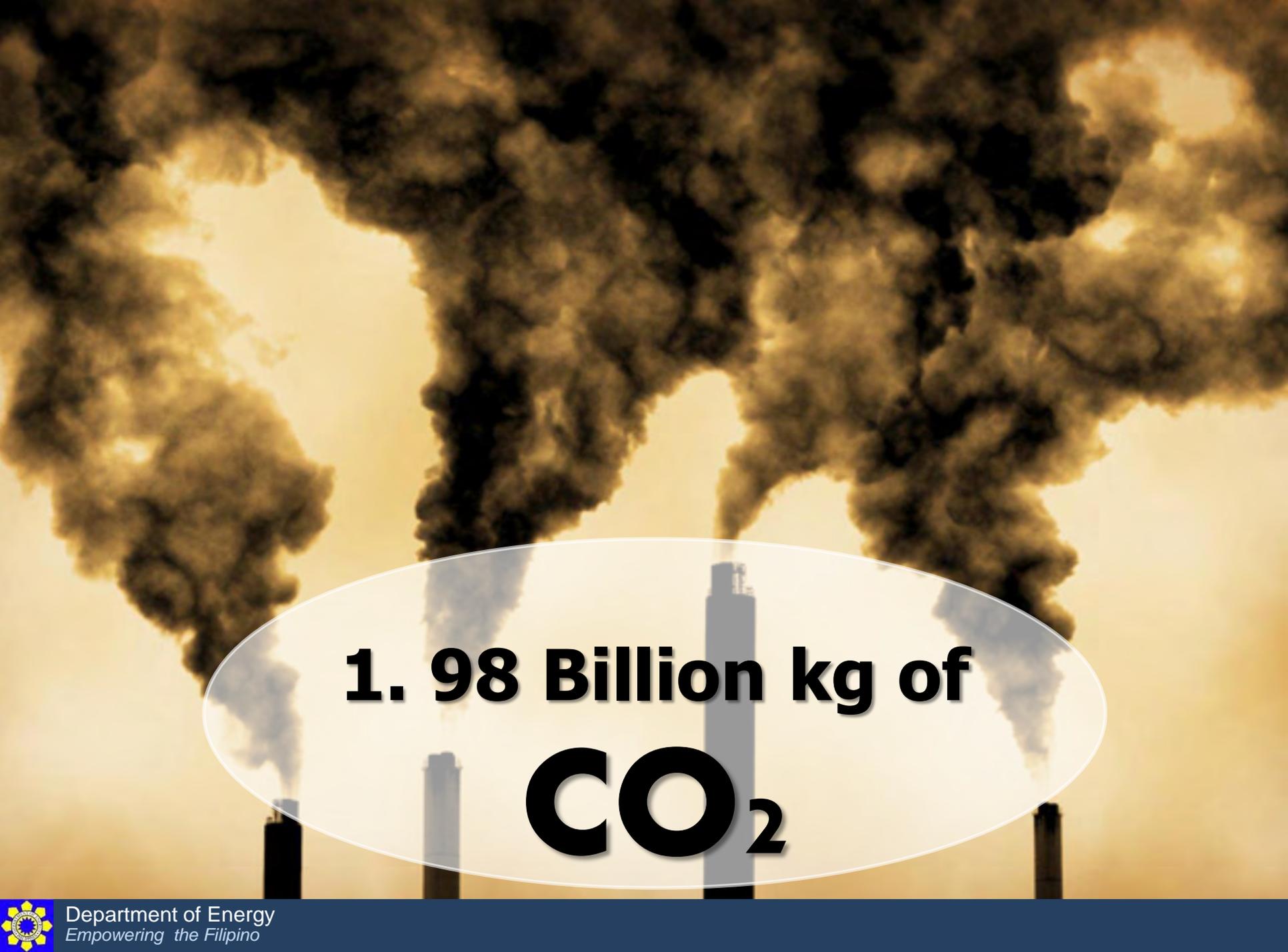


**24 hours = 6,060 tons**

**1 month = 181,800 tons**

**1 year = 2,181,600 tons**





**1. 98 Billion kg of  
CO<sub>2</sub>**





Absorbs **6** kg of  
**CO<sub>2</sub>**

330 Million  
**trees**



# How does the DOE Respond

**National Energy Efficiency and Conservation Program  
(NEECP)**

**Information Education & Communication Campaign (IEC)**



# Energy Efficiency and Conservation **Best Practices**



**ENERCON TIPS**

**Energy Efficiency and Conservation Division**  
**Energy Utilization Management Bureau**



# LIGHTING



We spend about **ONE-QUARTER** of our electricity budget on lighting.

**\$37 Billion Annually**



# INCANDESCENT BULBS



Color Rendering Index (CRI)

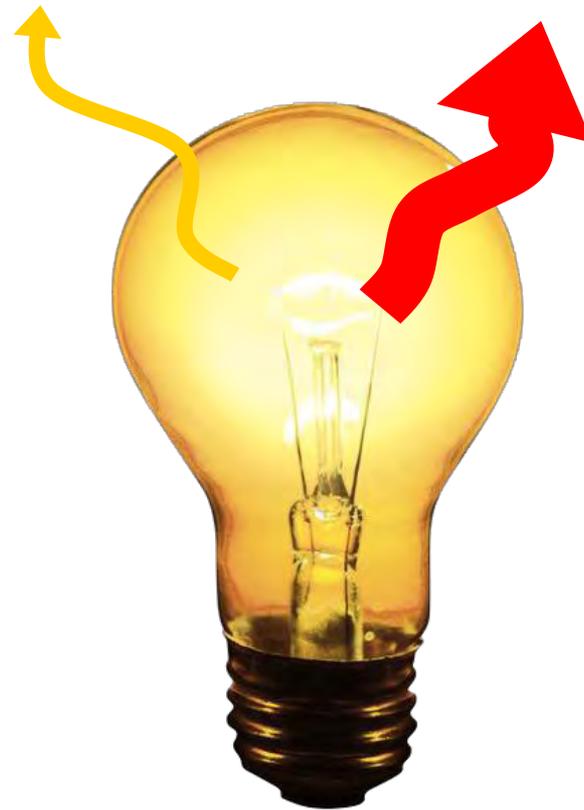
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# INCANDESCENT BULB

**20% light**

**80% heat**





**Incandescent Bulb**

Based on standard test condition

**2.6**

**BALLAST EFFICACY FACTOR**

Important: HIGHER BEF means HIGHER SAVINGS



**dti**  
DEPARTMENT OF TRADE AND INDUSTRY PHILIPPINES  
0512-345678

Brand Name: LAMPS

Model/ Type: Brightest

Light output, lumens: 2880

Wattage rating, watts: 36

**80**

**EFFICACY\***  
lumens/ watt

\*based on standard test condition

Important! For lamps with same wattage rating, HIGHER EFFICACY means MORE ENERGY SAVINGS

THE MINIMUM EFFICACY SET BY THE GOVERNMENT FOR THIS TYPE OF LAMP IS 70 lumens per watt



**dti**  
DEPARTMENT OF TRADE AND INDUSTRY PHILIPPINES  
0512-345678

**70%-80%**

**Compact Fluorescent Lamp (CFL)**



**50%**

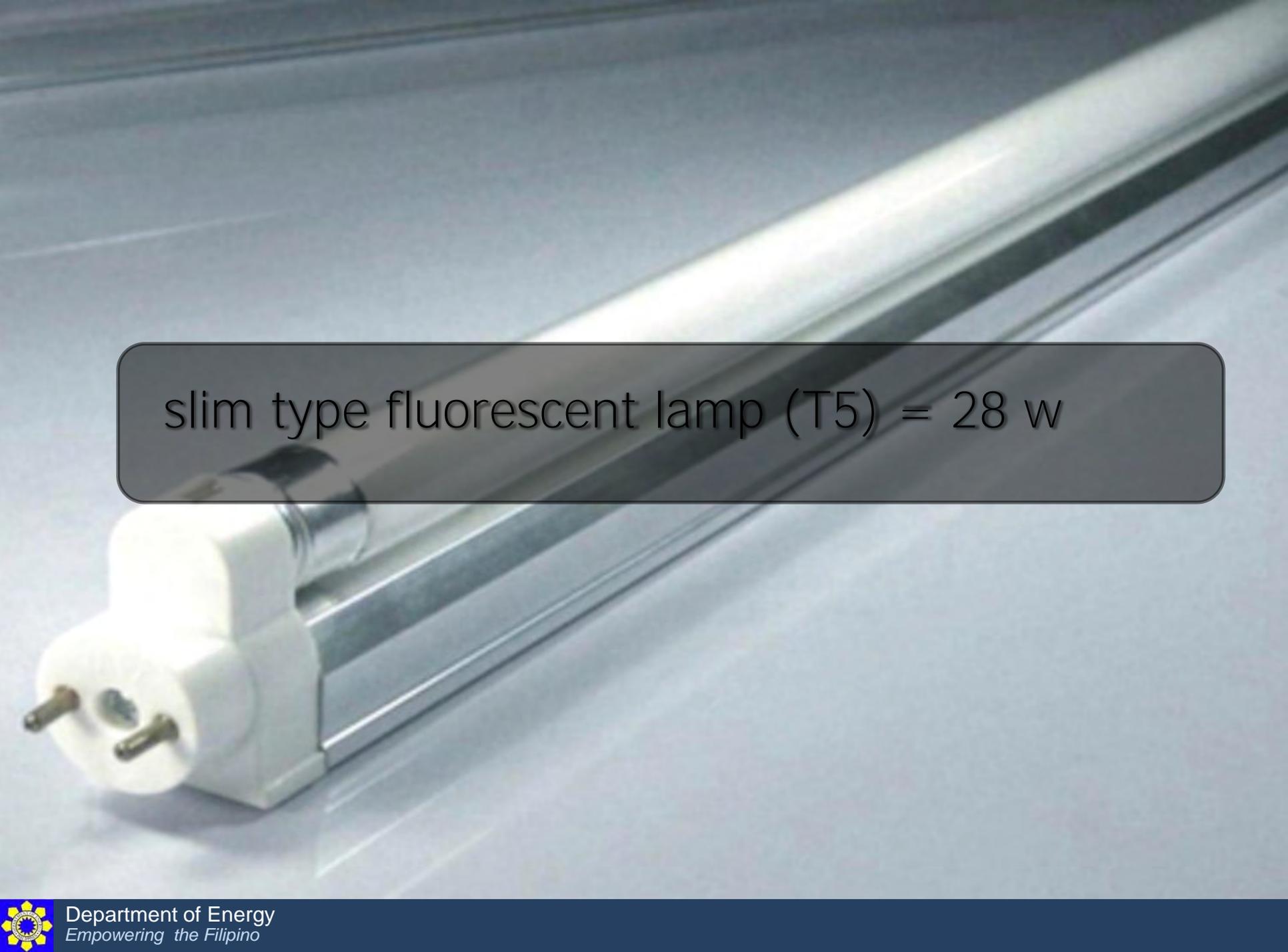
**Light Emitting Diode (LED)**





**LED's** lasts longer than any light source  
commercially available on the market





slim type fluorescent lamp (T5) = 28 w

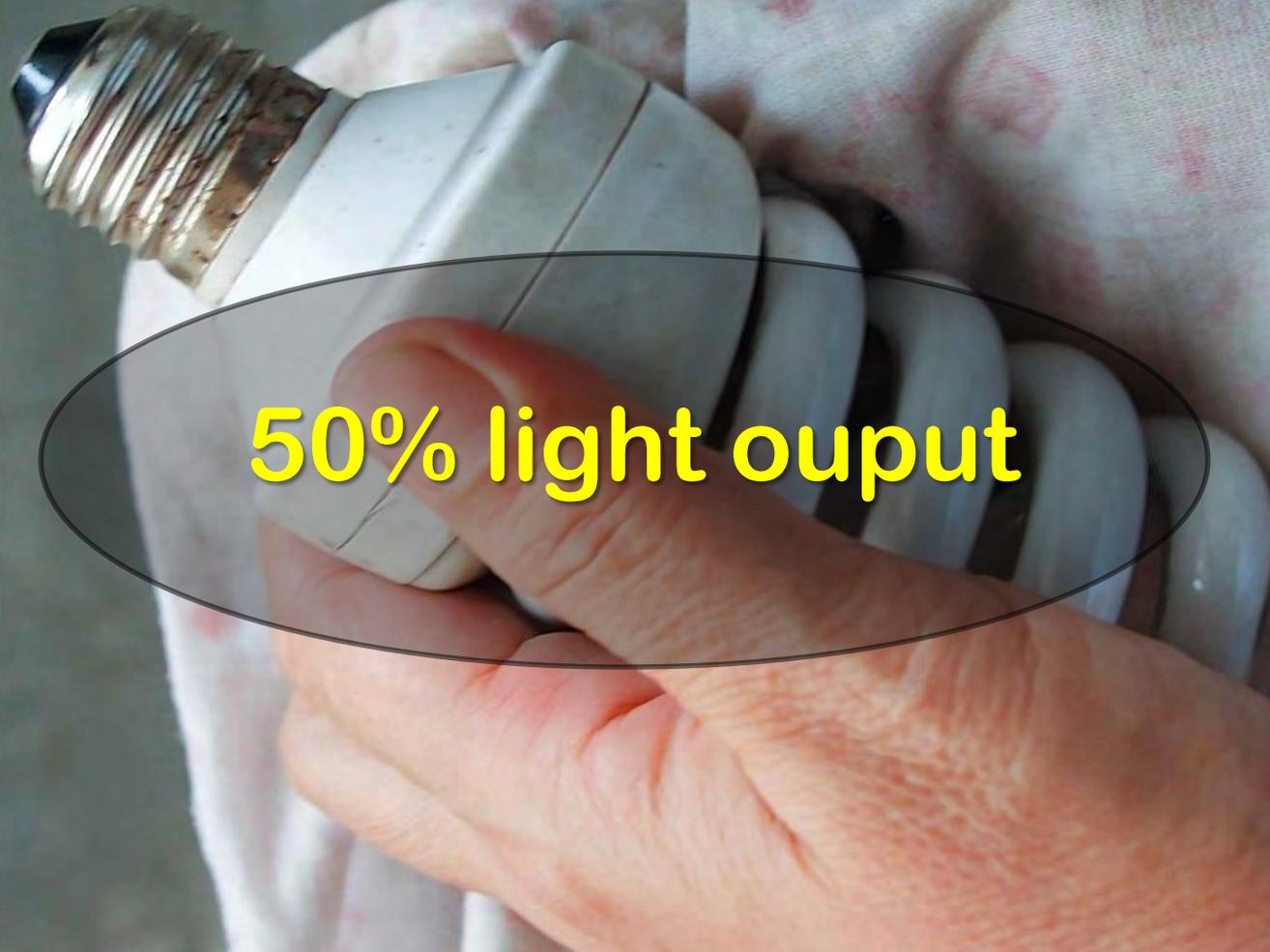


The image shows two identical linear LED lamps. Each lamp is a long, cylindrical tube with a silver-colored metal finish. The top half of the tube is covered with a grid of small, square LED chips. At each end of the tube, there is a circular base with two gold-colored pins protruding from the center. The lamps are positioned diagonally, one above the other, and are reflected on the surface below them. A semi-transparent dark grey rounded rectangle is overlaid in the center of the image, containing the text '16-watts Linear LED Lamp' in a bold, black, sans-serif font.

# 16-watts Linear LED Lamp



Clean at least twice a year in areas where doors allows outside air or filtering is not adequate.

A close-up photograph of a hand holding a compact fluorescent light (CFL) bulb. The bulb's glass envelope is heavily coated with a dark, brownish residue, likely dust or dirt, which is obscuring the internal phosphor coating. A black oval is drawn around the bulb, and the text "50% light output" is written in yellow inside it. The background is a plain, light-colored surface.

**50% light output**





# DAYLIGHTING





# COOLING & VENTILATION





# Clean the air filter

5% - 15% additional consumption



**Place the air conditioning unit at the shady side of the building.**

**40% additional energy consumption**







**Use of curtains or blinds**





**A/C rated capacity must be in the right room size**

**as high as 60%**




**CONCEPTION-CARRIER AIR CONDITIONING**  
 Brand: **CARRIER** Cooling Capacity: **19,600 kJ/h**  
 Model: **APXRT195BA** Power Consumption: **1,866 W**  
 Tested @ 230 Volts, 1a-50 Hz

**ENERGY GUIDE**

**NON-DUCTED AIR CONDITIONERS**

**10.5**  
ENERGY EFFICIENCY RATIO

For units with the same cooling capacity, higher EER means lower electricity cost.

For this model, the minimum EER standard set by the government is **8.6**

The monthly operating cost of this model will be approximately:

RATED POWER DEMAND	X	MONTHLY USAGE	X	POWER RATE	=	COST OF OPERATION
watt/1000 (kW)		hours (h)		Pesos/kW h		Pesos





REMOVAL OF THIS LABEL AT THE CONSUMER PURCHASE IS A VIOLATION OF Republic Act No. 7294

For information on the cost of operation and selection of correct cooling capacity, ask your dealer or write or call the Dept. of Energy, Fuels and Appliances Testing Laboratory, Commonwealth Avenue, Diliman, Quezon City, 961, Nov. 02-728-01 or 927-7137.

0002055



# Room Size vs ACU Cooling Capacity

Room Size (Sq. m.)	Manufacturer's Equivalent Cooling Capacity Rating (kJ/hr.)	Manufacturer's Equivalent Cooling Capacity Rating (Btu/hr.)	Aprx. Rating (HP)
14 to 16	7,385 - 8,440	7,000 – 8,000	3/4
19 to 21	9,495 - 10,550	9,000 – 10,000	1.0
25 to 26	12,660 - 13,290	12,000 - 12600	1.5
38 to 40	18,990 - 20,045	18,000 – 19,000	1.5





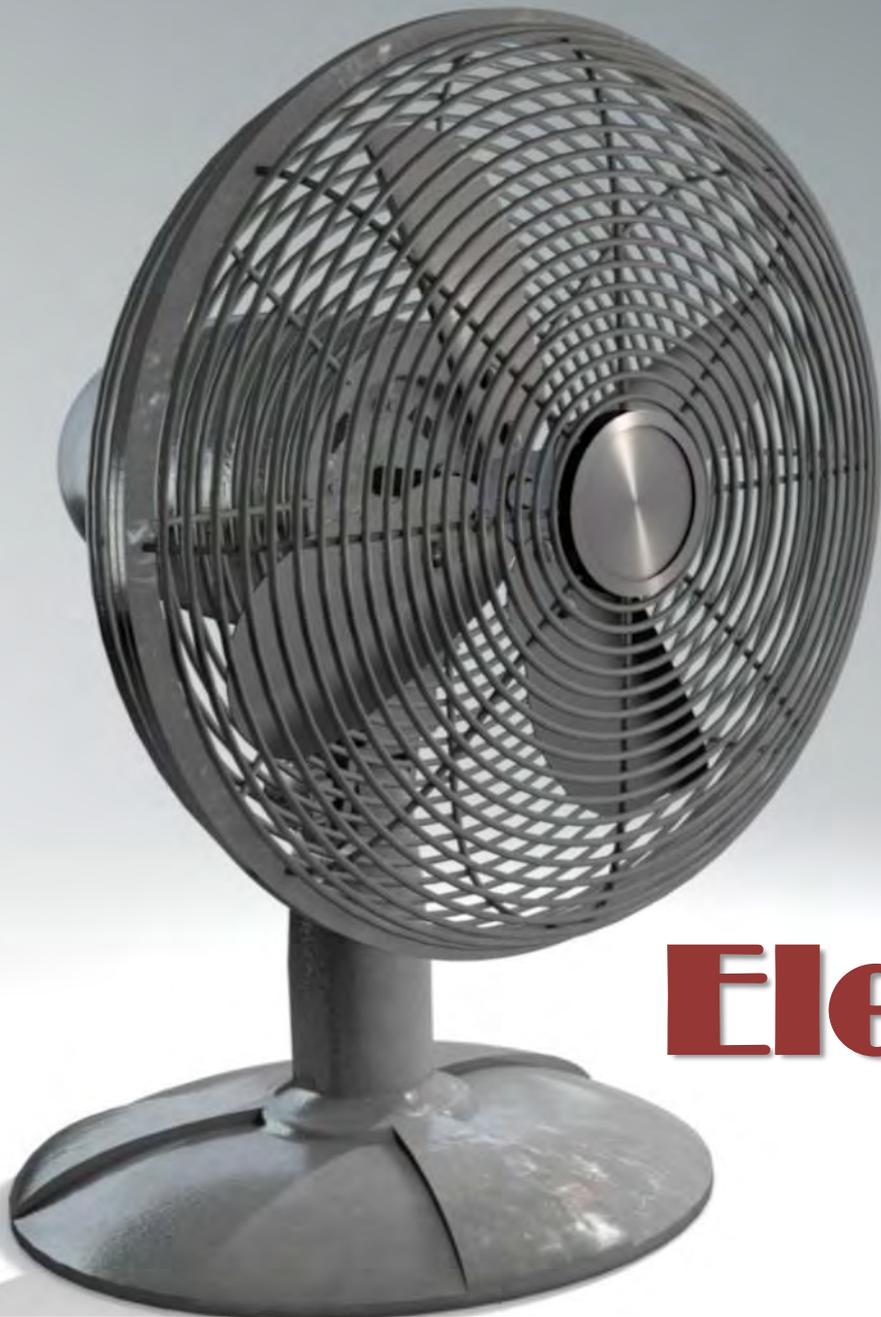
**Use Tight-fitting or awning windows.**



# Jalousie-type Windows

[htmc.en.alibaba.com](http://htmc.en.alibaba.com)





# Electric Fan





# COMPUTERS





**CRT Monitor**

**LED Monitor**

# Computer Monitor





**consumes 30% less**

**Laptop**





# TELEVISION



# CRT vs. PLASMA vs. LCD vs. LED

PLASMA



CRT



LCD



LED



**\*4-1 (Highest to lowest Energy Consumption)**



# Energy Consumption of TVs

Screen Size	LED (watts)	LCD (watts)	CRT (watts)	Plasma (watts)
15 inches	15	18	65	---
17 inches	18	20	75	---
19 inches	20	22	80	---
20 inches	24	26	90	---
21 inches	26	30	100	---
22 inches	30	40	110	---
24 inches	40	50	120	---
30 inches	50	60	---	150
32 inches	55	70	---	160
37 inches	60	80	---	180
42 inches	80	120	---	220
50 inches	100	150	---	300

Source: <http://energyusecalculator.com>



## *Did You Know?*

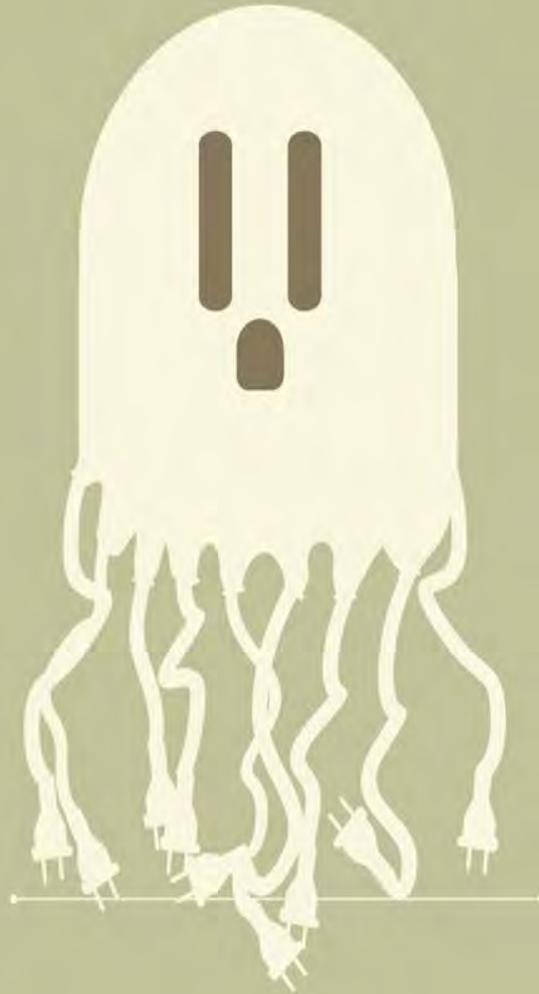
*Roughly 14% of home energy use comes from*

# PHANTOM LOAD?

*Turn off or unplug appliances* (computers,  
cell phone chargers,  
printers,  
microwaves,  
coffee makers, etc...)

*when not in use. Little  
steps add up to a*

# huge impact.



**PULL** *the plug*





# REFRIGERATOR





# Energy Label for Refrigerators and Freezers

**SINGER PHILIPPINES INC.**

Brand : **SINGER**      Rated Voltage : 230 volts  
 Model : REF 178A      Rated Current : 0.90 ampere  
 Type : ONE DOOR      Rated Frequency : 60 hertz  
 Total Storage Volume : 196 liters      Energy Consumption: 0.84 kW-h/24h  
 Rated Power Input : 116 watts

**ENERGY GUIDE**

REFRIGERATORS AND FREEZERS

ENERGY EFFICIENCY FACTOR

**246**

(At standard test condition)

higher EEF means lower operating cost

The daily operating cost of this model will be approximately:

Energy Consumption (kW-h/24h)	X	Energy Cost (Pesos/kW-h)	=	Cost of Operation (Pesos per 24h)
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REMOVAL OF THIS LABEL BEFORE CONSUMER PURCHASE  
IS A VIOLATION OF REPUBLIC ACT NO. 7394

For additional informations ask your dealer or write / call the Department of Energy, Fuels and Appliance Testing Laboratory, PNO-CERD compound, Commonwealth Avenue, Diliman, Quezon City, Tel. Nos. 929-54-43, 927-72-01 or; Fax 929-54-74

AH-150860

J11220305309



# Refrigerators' Door



Do the “**BILL TEST**”  
to test if the Magnetic  
Lining of the Ref's door is  
still working properly.





**Keep the Condenser Coil **CLEAN.****





**Defrost**

**Ref costs 15-25% of the total  
energy use at home**



# Frost Free FREEZERS





Home

Appliance List

Energy Efficiency Ratio

Kuryentipid

Consumption Calculator

About Us



**In the Know.** Explore the cost of operating each listed appliance.



Be cool. Learn more about **buying the right** aircon.



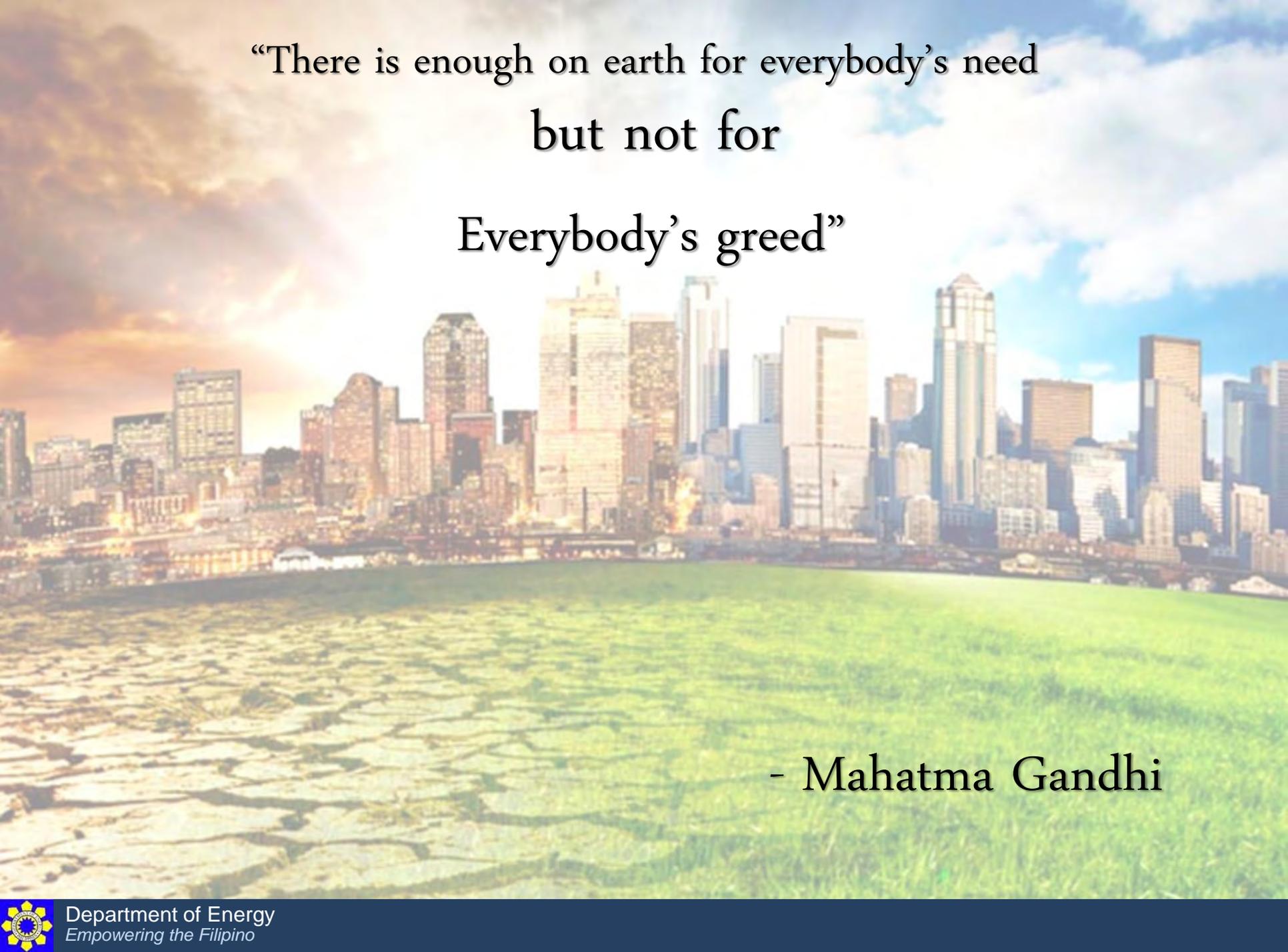
**Save Power, Save Money.** Practical energy conservation tips.



**Calculate My Electric Bill.** Discover the estimated share of each appliance to your monthly

Today's wastage  
is  
Tomorrow's shortage.





“There is enough on earth for everybody’s need  
but not for  
Everybody’s greed”

- Mahatma Gandhi



# Thank You!

