



THE PHILIPPINE ENERGY EFFICIENCY STANDARDS AND LABELLING PROGRAM FOR LIGHTING PRODUCTS

*Informing the Supplier
Le Meridien, New Delhi, India
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Program Description

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- **A joint program of the Department of Energy (DOE) and the Department of Trade and Industry (DTI) which requires appliances and lighting products to meet prescribed energy efficiency levels and to carry an energy label at the point of sale.**

Brief History of the Program

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- 1979 – second oil crisis
- 1980 – Energy Conservation Law (expired in 1990)
- July 1992 - voluntary labeling for RACs.
- October 1993 - Mandatory Labeling for RACs
- June 1994 - Full implementation for all sizes of window type RAC
- 1999 – Mandatory Labeling for refrigerators
- 2000 - inclusion of split type RAC up to 36,000 kJ/h capacity.
- 2003 – Launching of the mandatory CFL energy label
- 2010 – CFLs (MEPS), LFL (MEPS/Label), ballast, Circular fluorescent lamps

Objectives of the Philippine Energy Efficiency Standards and Labelling Program

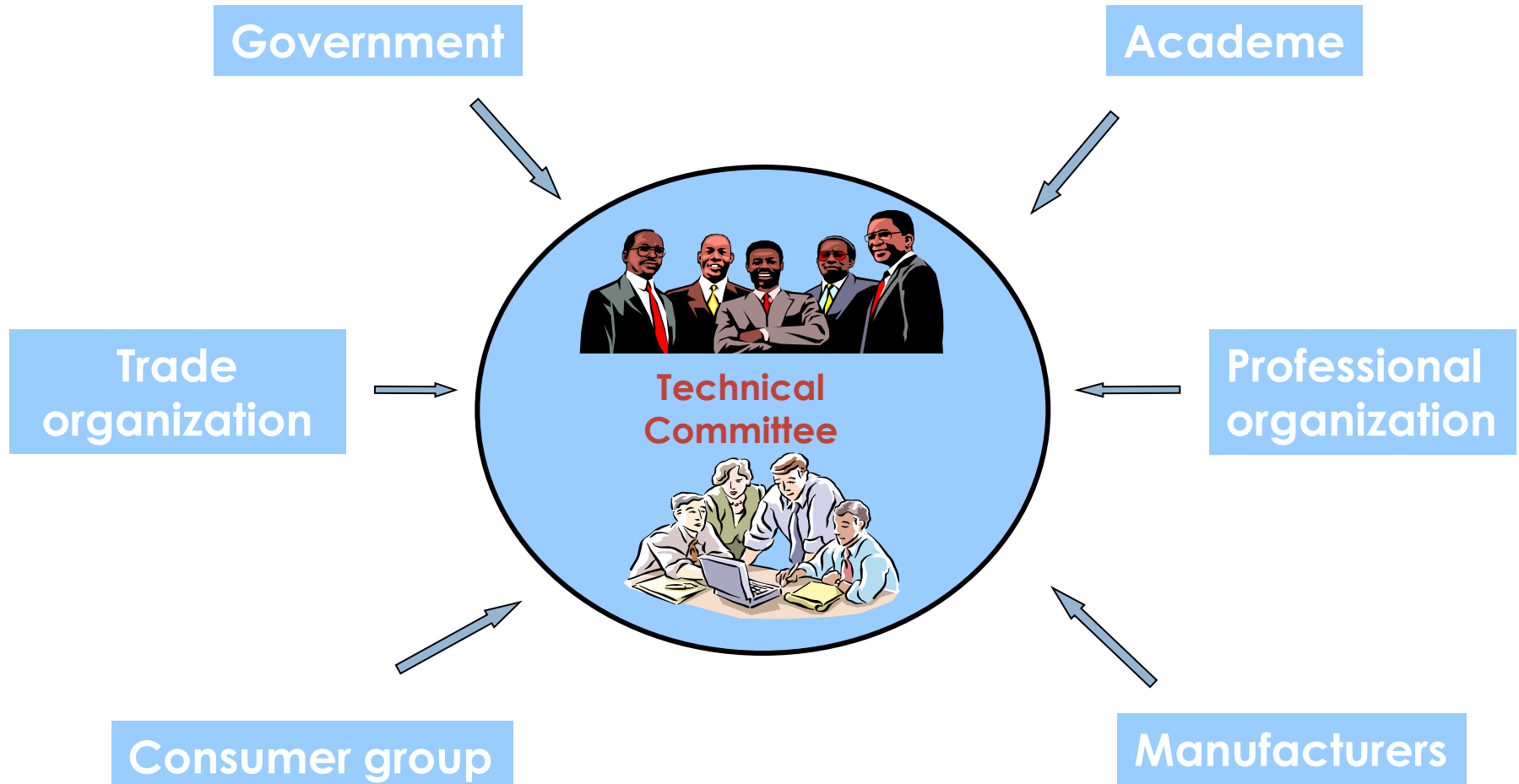
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- ➡ **Eliminate the least efficient household appliances and lighting products in the local market**
- ➡ **Reduce monthly electricity bill to end-user or consumers.**
- ➡ **Protection from mislabelling.**
- ➡ **Encourage manufacturers to improve product efficiency to make their products competitive in the local and in the world market**
- ➡ **Reduce greenhouse gas emission from power generation**

Program development and implementation process

Standards development – the Technical Committee Approach

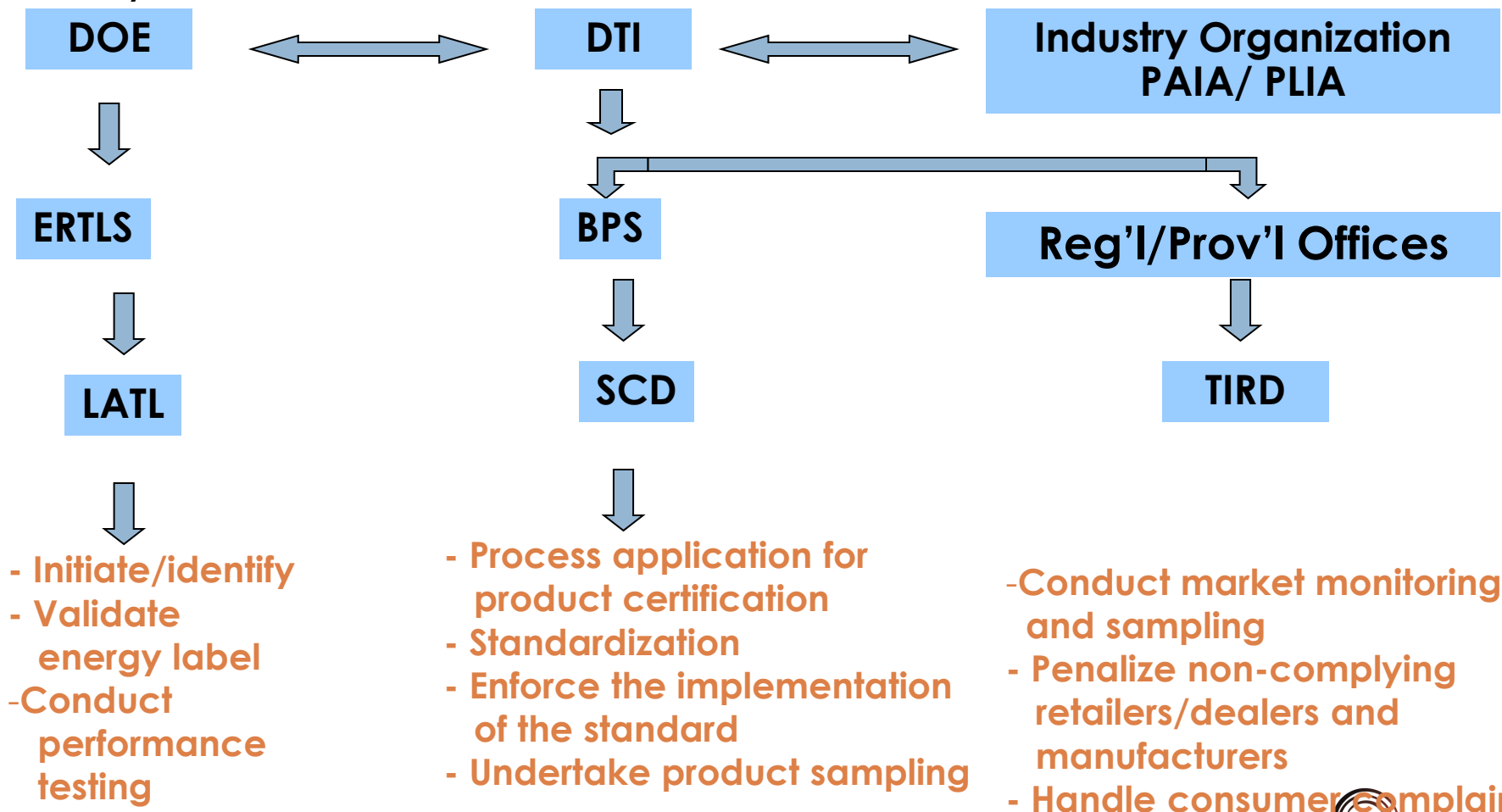
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Program development and implementation process

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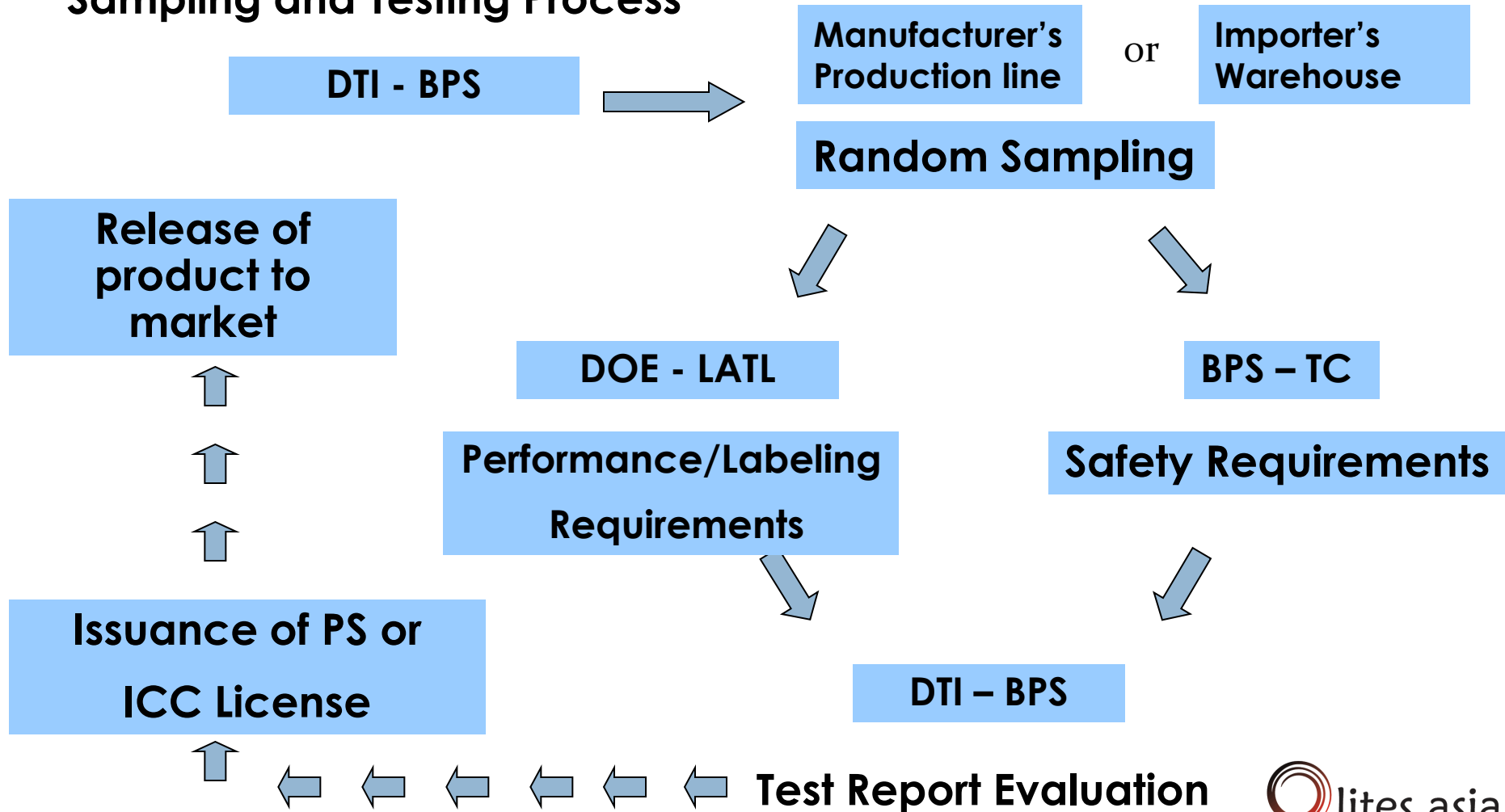
DOE/DTI roles



Program development and implementation process

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Sampling and Testing Process



Program development and implementation process

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Philippine Standard (PS) Quality and/or Certification Mark



CERTIFIED
Product Safety

For locally-manufactured products that
comply with Philippine National Standard



CERTIFIED
Product Quality



For imported products that
comply with Philippine
National Standard

Energy Label for CFLs

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Brand Name:	
Model/Type:	
Lamp Specifications ¹	
Light Output	900 lumens
Power Consumption	15 watts
Efficacy ³	60 lumens per watt
Average Life ²	8000 hours
For lamps of similar light output, higher efficacy means more energy savings	
¹ when tested at standard test conditions	
² rated average life at 50% failure	
³ The Minimum Efficacy Set By The Government	
For This Type Of Lamp Is	
60 LUMENS PER WATT.	
CTRL NO. XXXX-XXXXXX	

Light Output total amount of light produced by the lamp, in lumens

Power Consumption total amount of electricity consumed by the lamp, in watts

Efficacy indicates the efficiency in which the power consumed is converted into light; ratio of light output to power consumption, in lumens/watt

Average Life Time at which 50% of the batch of samples are busted, in hours.

Note: Above are measured in a testing laboratory

Compact Fluorescent Lamps

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PNS 2050-2:2007 Lamps and related equipment – Energy efficiency and labeling requirements

Part 2: Self-ballasted lamps for general lighting services

Scope:

Self-ballasted lamps for domestic and similar general lighting service, 3 to 60 watts power input, having a rated voltage up to 230 volts, 60Hz with Edison screw base E14 & E27.

Exemptions: LED lamps, PAR lamps

Compact Fluorescent Lamps

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MEPS

Input power of lamp (W)	Initial luminous efficacy (lm/W)	
	Correlated color temperature (CCT)	
	$\leq 4000\text{K}$	$> 4000\text{K}$
≥ 3 to < 5	45	41
≥ 5 to < 9	50	46
≥ 9 to < 15	55	52
≥ 15 to < 25	60	57
≥ 25	65	62

The minimum initial efficacy of an encapsulated lamp model (lamp model with an integral cover) shall not be less than 85% of the requirements indicated above

Compact Fluorescent Lamps

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Other Performance Requirements

Luminous flux (in lumens) measured after ageing for 100 hours

The initial luminous flux measured after the ageing time shall be not less than 90% of the rated luminous flux.

Lamp wattage measured after ageing for 100 hours

The initial measured total power input to the lamp shall not differ from the rated wattage by $\pm 15\%$

Lumen maintenance measured after 2,000 operating hours

After 2000 hours of operation the lumen maintenance of the lamp shall not be less than 80%

Average life

The length of time during which 50% of the lamps reach the end of their individual life. Average life shall not be less than 6,000 hours.

Linear Fluorescent Lamps

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Brand Name	: LAMPS	EFFICACY*	  *based on standard test condition	0512-345678
Model/ Type:	: Brightest	80 lumens/ watt		
Light output, lumens :	2880			
Wattage rating, watts:	36			

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

PNS 2050-1-1:2007 Lamps and related equipment – Energy efficiency and labeling requirements – Part 1-1: Double-capped fluorescent lamps

Scope:

Covers linear fluorescent lamps for general lighting service specifically T12, T8 and T5 halophosphate and triphosphate fluorescent lamps with G13 and G5 caps with a power input of 10W up to 65W operating at 220-300V AC, 50/60 Hz

Linear Fluorescent Lamps

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Linear Fluorescent Lamps

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MEPS

Table 1. Required minimum efficacy of halophosphate linear fluorescent lamps

Input power of lamp (W)	Initial luminous efficacy (lm/W)	
	Correlated color temperature (CCT)	
	≤ 4000K	> 4000K
≥ 10 to 21	60	55
≥ 22 to 35	65	60
≥ 36 to 65	70	65

Linear Fluorescent Lamps

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MEPS

Table 2. Required minimum efficacy of triphosphate linear fluorescent lamps

Input power of lamp (W)	Initial luminous efficacy (lm/W)	
	Correlated color temperature (CCT)	
	$\leq 4000\text{K}$	$> 4000\text{K}$
≥ 14 to 21	65	60
≥ 22 to 35	75	70
≥ 36 to 65	83	78

Linear Fluorescent Lamps

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MEPS

Table 3. Required minimum efficacy of triphosphor T5 fluorescent lamps

Input power of lamp (W)	Initial luminous efficacy (lm/W)	
	Correlated color temperature (CCT)	
	≤ 4000K	> 4000K
≥ 14 to 21	85	80
≥ 22 to 35	95	90

Linear Fluorescent Lamps

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Other Performance Requirements

Lamp Life

The average rated life of a halophosphate lamp shall not be less than 10,000 hours while the average life of a triphosphor lamp shall not be less than 15,000 hours

Color Rendering Index

The CRI of a halophosphate lamp shall not be less than 70 while the CRI of a triphosphor lamp shall not be less than 80

Lumen maintenance

After 2,000 hours of operation the lumen maintenance of the lamp shall not be less than 92%

Linear Fluorescent Lamps

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Other Performance Requirements

Photometric Characteristics

The initial reading of the luminous flux of a lamp shall be not less than 92% of the rated value

Electrical and Cathode Characteristics

The initial reading of the power dissipated by the lamp shall not exceed the rated wattage specified on the relevant lamp data sheet by more than 5% + 0.5W

Energy Label for Circular Fluorescent Lamps

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Brand Name : **LAMPS**

Model/ Type: : **Brightest**

Light output, lumens : **2240**

Wattage rating, watts: **32**

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



Circular Fluorescent Lamps

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PNS IEC 901: 2001 “Single-capped fluorescent lamps- Performance requirements”

- **Coverage**

Performance requirements for single-capped fluorescent lamps for general lighting service specifically for lamps with diameter:

26.2 to 30.9 mm tube diameter, 60901-IEC-3222-2 page 1, 22W

26.2 to 30.9 mm tube diameter, 60901-IEC-3232-2 page 1, 32W

26.2 to 30.9 mm tube diameter, 60901-IEC-3240-2 page 1, 40W

Circular Fluorescent Lamps

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Performance Requirements

Photometric Characteristics

The initial reading of the luminous flux of a lamp shall be not less than 90% of the rated value.

Electrical and Cathode Characteristics

The initial reading of the power dissipated by the lamp shall not exceed the rated wattage specified on the relevant lamp data sheet by more than $5\% + 0.5\text{W}$.

Part 2-20: Particular requirements – Lighting chains

Scope

This Philippine National Standard is identical with the International Electrotechnical Commission IEC 60598-2-20:2010 – Luminaires – Part 2-20: Particular requirements – Lighting chains. I

It was approved for adoption as a Philippine National Standard by the Bureau of Product Standards upon the recommendation of the Technical Committee on Lamps and Related Equipment (BPS/TC4)

This standard cancels and replaces PNS 189:2000. Within the text of the standard, the following are the minimal editorial changes:

- a) the decimal comma shall be interpreted as a decimal point to be consistent with existing convention on our number format
- b) the words “International Standard” shall mean “National Standard”.

Luminaires –

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This part of IEC 60598 specifies requirements for lighting chains fitted with series- or parallel or a combination of series/parallel-connected incandescent lamps for use either indoors or outdoors on supply voltages not exceeding 250 V.

NOTE 1 A Christmas tree chain is an example of a lighting chain fitted with series or series/parallel connected lamps. A chain for illuminating ski-tracks or promenades is an example of a lighting chain fitted with parallel connected lamps.

NOTE 2 For lighting chains fitted with lampholders of the push-in type, the appropriate requirements of this part of IEC 60598 apply.

NOTE 3 In some countries, the term "strings" is used instead of "chains".

NOTE 4 For lighting chains with non-standardised lamps (e.g. lamps of the push-in type) the lamps are regarded as a part of the lighting chain and consequently included in the testing (and thereby in the certificate, if any

**PNS 2050-4:2007 Lamps and related equipment – Energy labeling requirements -
Part 4: Ballasts**

- **Scope:**
Ballasts for general lighting

AC supplied Electronic Ballasts:

10W to 40W for T12,T10,T9,T8, and T5 fluorescent lamps with G13 and G5 caps

AC supplied Electromagnetic Ballasts:

18W to 40W for T12,T10,T9 and T8 fluorescent lamps with G13 cap

Labeling Requirements

Ballast efficacy factor

The ratio of the ballast lumen factor to the total input power

Ballast efficacy factor

Shall not be less than 95% of the value declared by the manufacturer

Energy Label for Ballasts

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Based on standard
test condition

**BALLAST
EFFICACY
FACTOR**

2.6



0512-345678

Important: HIGHER BEF means HIGHER SAVINGS



Ballasts

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PNS IEC 60921:2006 (IEC published 2004) Ballast for tubular fluorescent lamps – Performance requirements (Electromagnetic)

PNS IEC 60929:2006 (IEC published 2003) AC-supplied electronic ballasts for tubular fluorescent lamps – Performance requirements

PNS IEC 60921:2006 (IEC published 2004) Ballast for tubular fluorescent lamps – Performance requirements (Electromagnetic)

Supply current

At rated voltage, the supply current to the ballasts shall not differ by more than 10% from the value marked on the ballasts when the latter is operated with a reference lamp

Circuit power factor

Shall not differ from the marked value by 0.05 when operated with a reference lamp

Lamp power and current

Shall limit the power and current of a reference lamp to not less than 92.5% for the power and not more than 115% for the current of the corresponding values delivered to the same lamp when operated with a reference ballast

PNS IEC 60929:2006 (IEC published 2004) AC-supplied electronic ballasts for tubular fluorescent lamps- Performance requirements

Supply current

At rated voltage, the supply current to the ballasts shall not differ by more than $\pm 10\%$ from the value marked on the ballasts when the latter is operated with a reference lamp

Circuit power factor

Shall not differ from the marked value by 0.05 when operated with a reference lamp

Crest factor

Shall not exceed 1.7

PNS IEC 60929:2006 (IEC published 2004) Ballast for tubular fluorescent lamps – Performance requirements (Magnetic)

Total power

Shall not be more than 110% of the value declared by the manufacturer when the ballast is operated with a reference lamp

Lamp power

Shall limit the current delivered to a reference lamp to a value not exceeding 115% of that delivered to the same lamp when it is operated with a reference ballast

Updates on the Lighting program

Plans for 2012/2013

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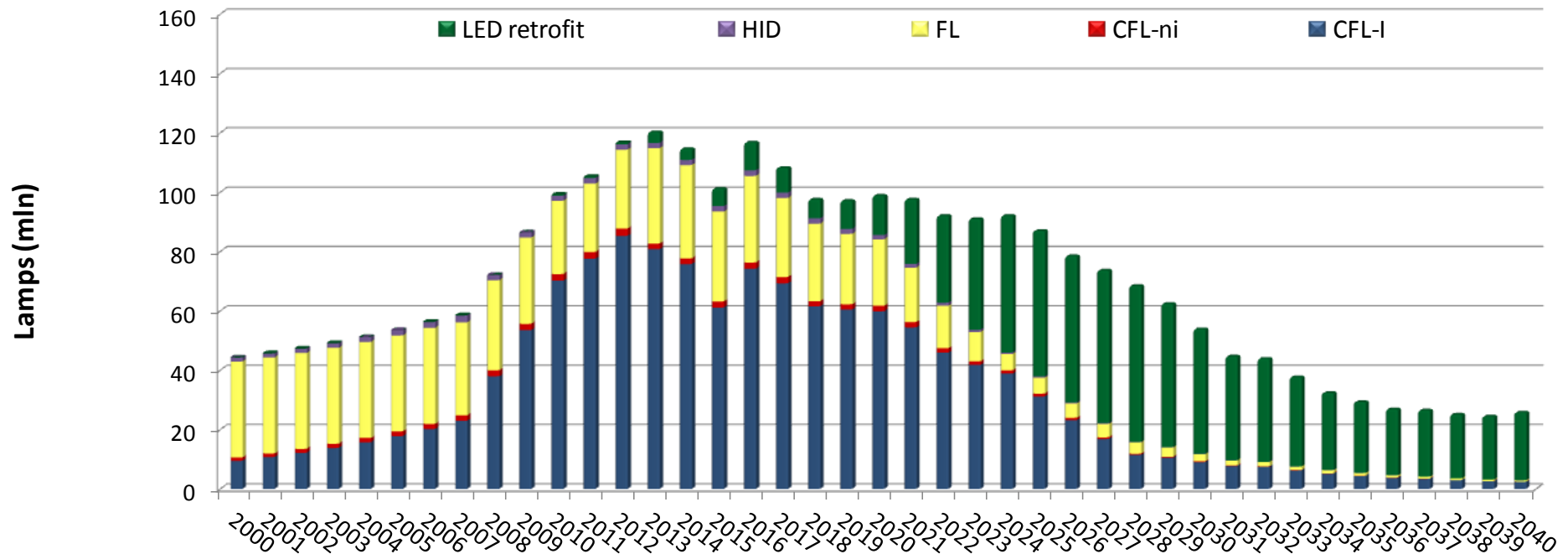
- Review the performance requirements for Self-ballasted Lamps (CFLs), by 2012
- Prepare the implementing guidelines for PNS 2050-6:2010 – specifies MEPS for incandescent lamps for general lighting services, by 2012.
 - DOE is tasked to prepare the draft implementing guidelines
 - The promulgation of MEPS and implementing guidelines is targeted before end of 2012
- Review the performance requirements for luminaires, by 2013

Finance and Operational Scenario

Market Data: Projected Sales

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Reported and Estimated POM Philippines





THANK YOU!

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