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# LIGHTING ENERGY EFFICIENCY (Watts Out!)

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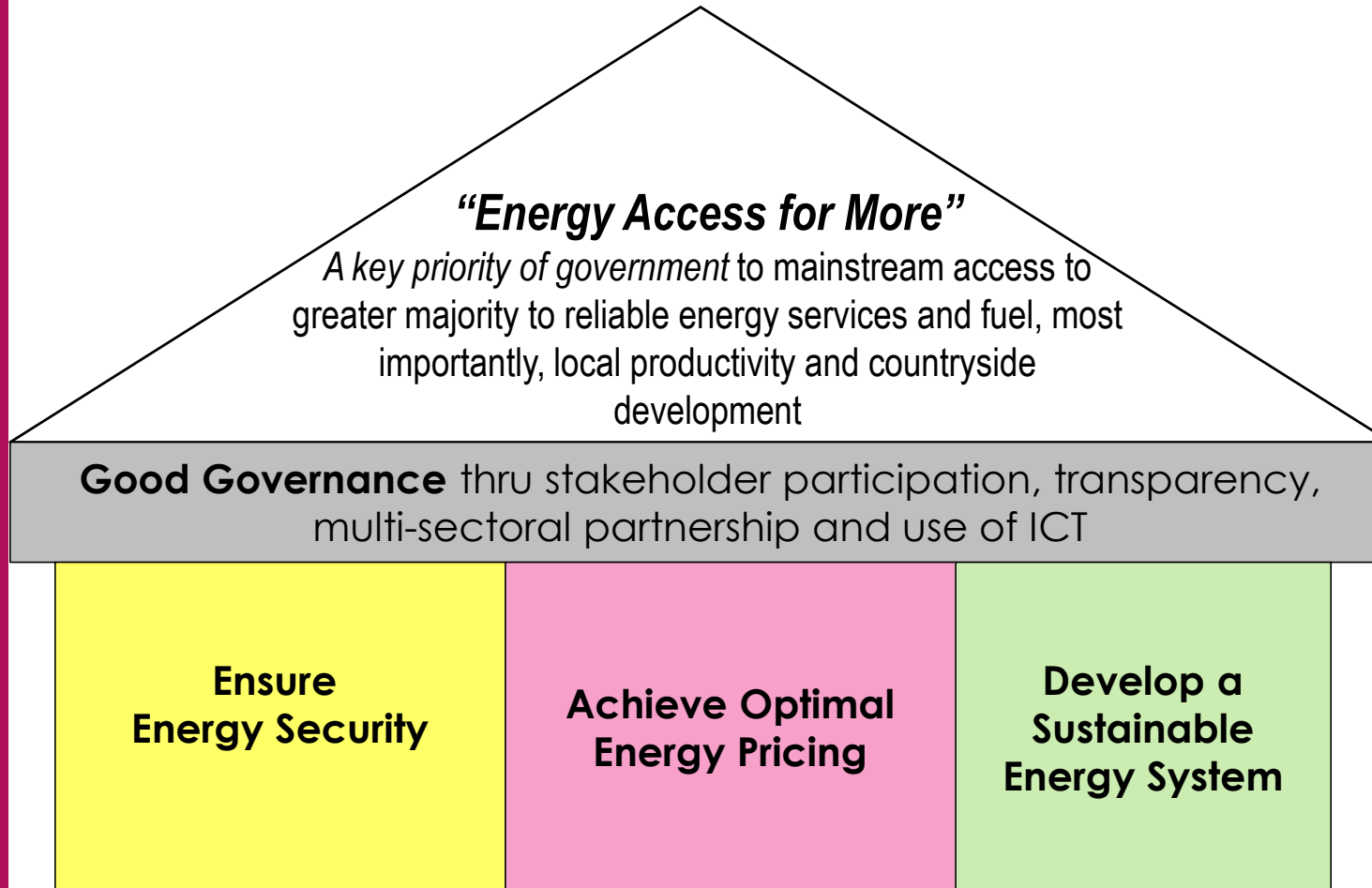


## Objective of the Presentation

- Navigate through the major Philippine lighting initiatives and explore its link with UNEP's en.lighten objectives

# PHILIPPINE ENERGY REFORM AGENDA

**Making the Case**





# Energy Efficiency

## Regular DOE Programs

**Information, Education and Communication (IEC)  
Campaign**

**Voluntary Agreements  
(fuel use efficiency e.g. car pooling, anti-idling, carless day)**

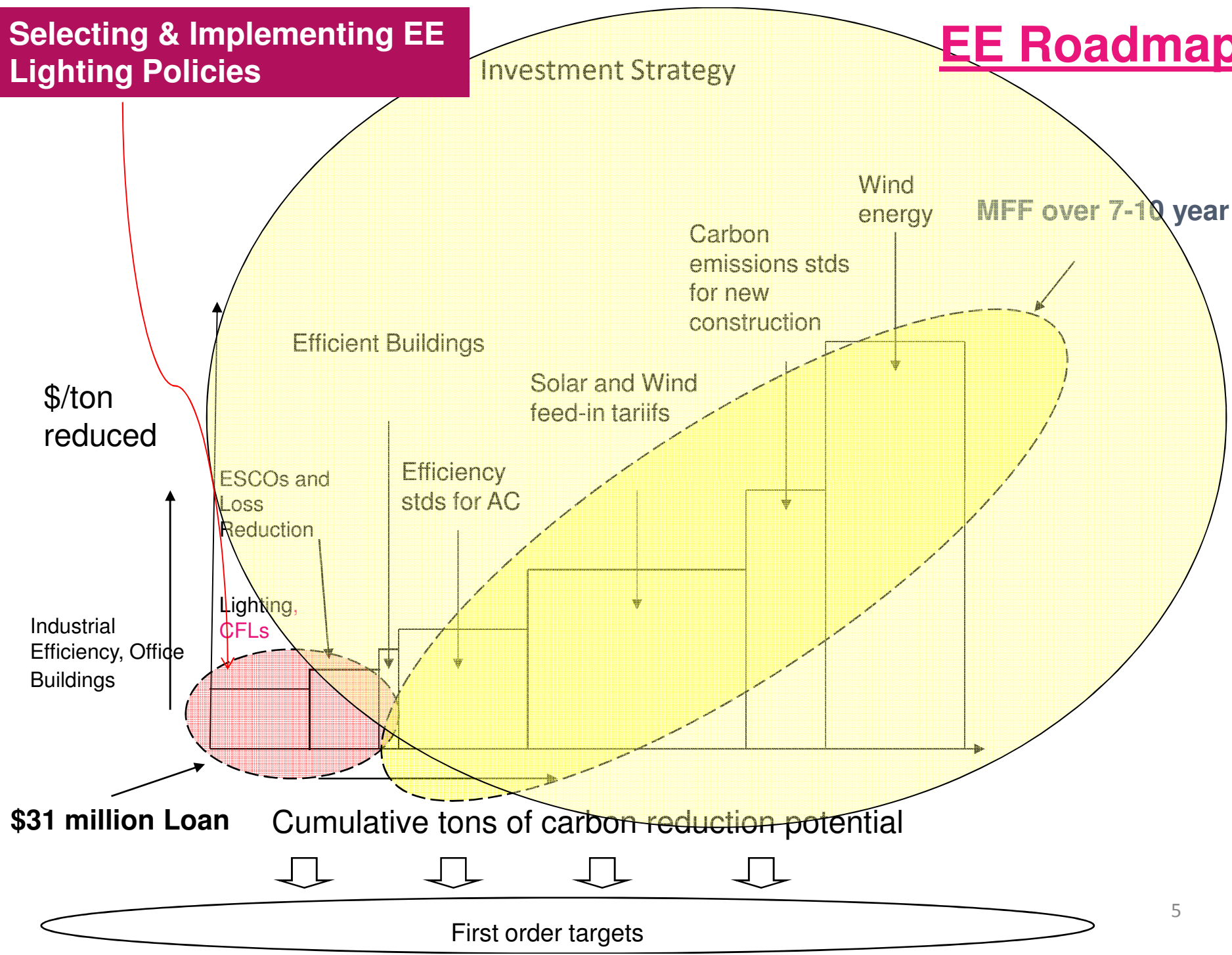
**Energy Standards and Labeling**

**Government Energy Management Program (GEMP)  
(Spot checks)**

**Energy Management Program  
(Energy audit, awards)**

# EE Roadmap

## Selecting & Implementing EE Lighting Policies



## Leveraging International Resources

- **GEF/United Nations Development Programme (UNDP)**
  - Philippine Efficient Lighting Market Transformation Project (PELMATP), USD 12M
- **Asian Development Bank**
  - Philippine Energy Efficiency Project, USD 31.5 M

# Philippine Energy Efficiency Project

1. Efficient Lighting Initiative
  - 1.1 Retrofit Government Office Buildings
  - 1.2 National Residential Lighting Program**
  - 1.3 Public Lighting Retrofits
  - 1.4 Energy Efficiency Testing and Lamp Waste Management
2. Efficiency Initiatives in Buildings and Industries
  - 2.1 Super ESCO
  - 2.2 Efficient Building Initiative
3. Communication and Social Mobilization
  - 3.1 Communication for Efficient Lighting
  - 3.2 Promoting Efficiency in Everyday Life

## **Costs**

\$46.5 million

- ADB Loan – \$31 million
- ADB Grant – \$1.5 million
- Government – \$14 million

## Benefits of Efficient Lighting

- Retrofit of Government Office Buildings

Status: On-going

- Savings, in MWh per year
  - 8,540
- Savings, in PhP per year
  - 45.774 million
- GHG, MT CO2
  - 4,612

## Benefits of Efficient Lighting

- **National Residential Lighting Program (IBs to CFLs)**

Scope: 8.6 million CFLs for nationwide distribution

Status: 5 million distributed;

Invitation to Bid for 3.6 million out by November 2011

- Annual Savings (in kWh)

➤ **244,842**

- Annual Savings  
(in M PhP),

➤ **1,312.353**

- Annual GHG reduction (MT)

➤ **132,215**

## Benefits of Efficient Lighting

- Public Lighting Retrofit

- Parks, Baguio City
- Streetlights, Cagayan de Oro
- Traffic lights, Metro Manila

**Status: On-going**

- Annual Savings,(MWh)

➤ **2,767**

- GHG reduction (MT)

➤ **1,494**

## Energy Efficiency Testing

**Scope: Expansion of the Energy Labeling Program to include the ff:**

- 1) Larger volume refrigerators/beverage coolers**
- 2) Washing machines**
- 3) Televisions**

**Status: Bid evaluation on-going**

# Benefits of Energy Efficiency

National Energy Efficiency and Conservation Program Actual Savings, in  
MMBFOE

Regular DOE Programs	2009	2010
Information, Education and Communication (IEC) Campaign	3.47	3.45
Voluntary Agreements	5.47	3.60
Energy Standards and Labeling	10.98	14.27
Government Energy Management Program (GEMP)	0.22	0.22
Energy Management Program	2.46	3.26
<b>TOTAL</b>	<b>22.60</b>	<b>24.80</b>

## Enabling Tools

- Standards / MEPS /warranty
- Promotion on use of the following-
  - Guidelines on Energy Conserving Design of Buildings (reference material for the National Building Code)
  - Efficient Lighting Manual
  - Roadway Lighting Guidelines

## Enabling Tools

- Energy Labeling Program
- Government procurement bias on efficient lighting
- Tax Incentives on manufacture of lighting products

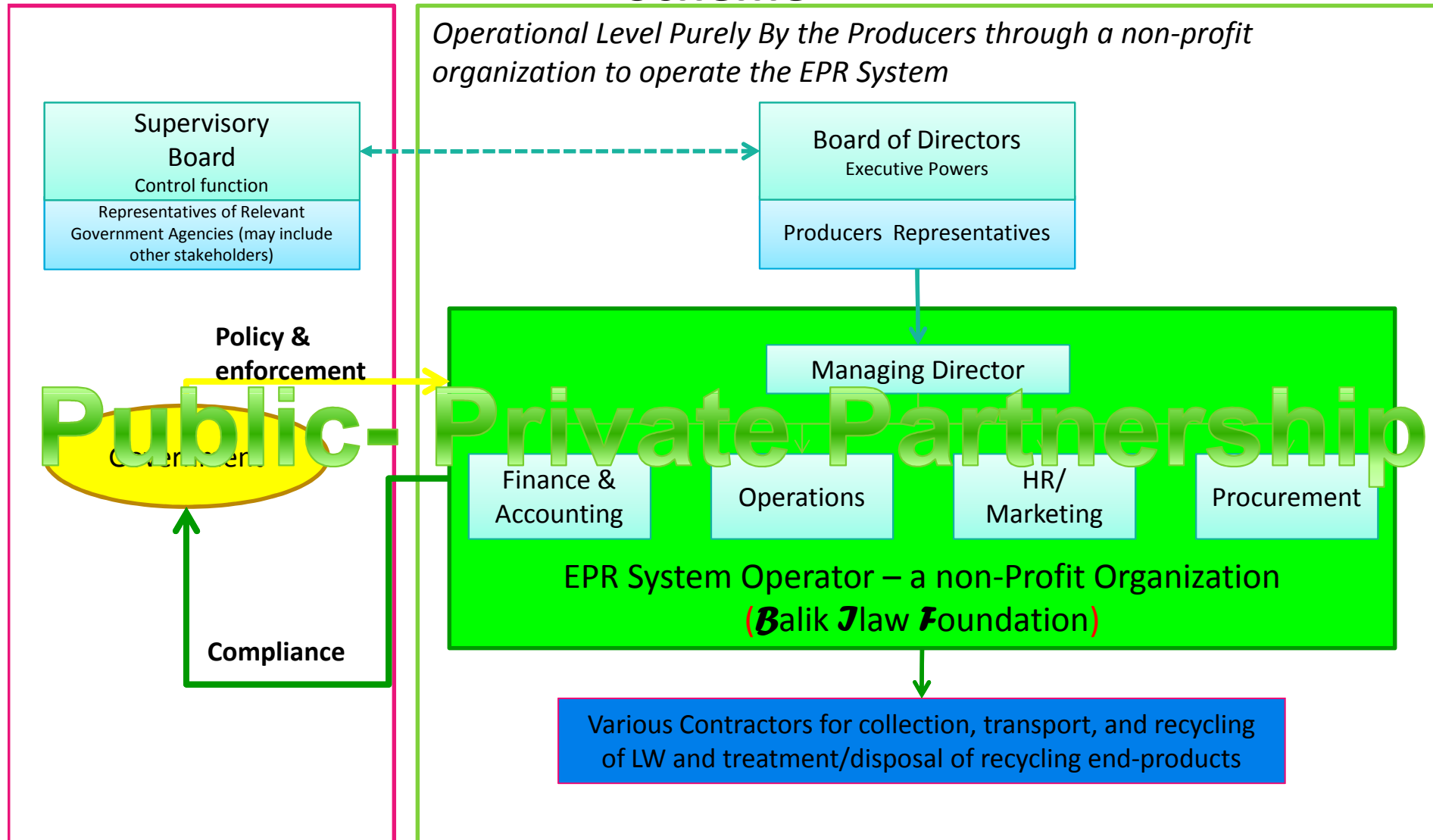
## Sustainability/ Safeguarding Environment and Health

- Illumination Engineering Design as a 3-unit subject for Electrical Engineers
- Teaching Modules for Professionals
- Lighting Application Center
- Energy Labeling Program
- Green Building Rating System
- Lamp Waste Management Facility

# Extended Producer Responsibility (EPR) for Lighting Products in the Philippines

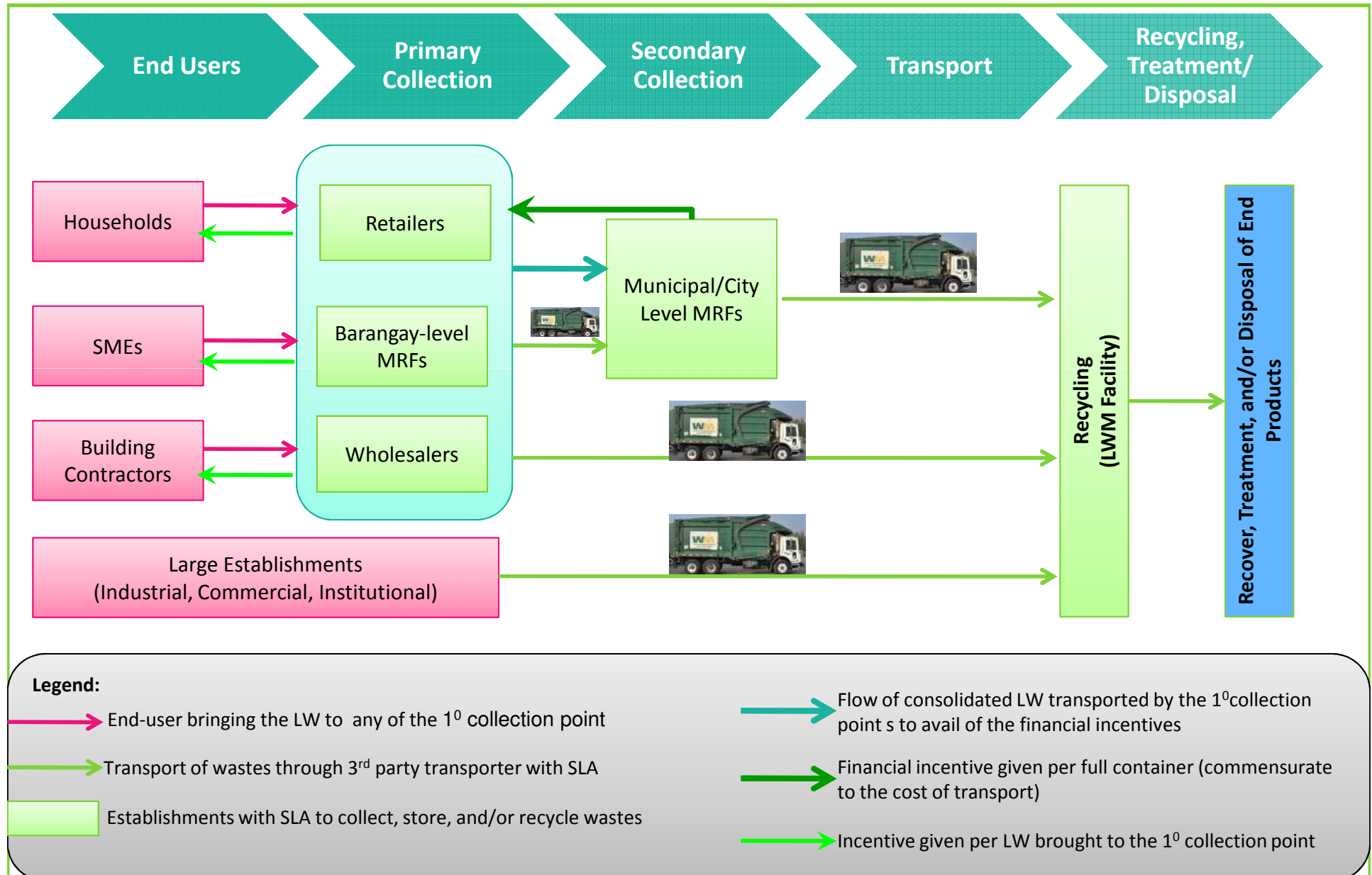


# Initial Organizational Structure for the Proposed EPR Scheme



# Philippine Lighting Products EPR Model

*Flow of the Collection & Recycling of Lamp Wastes with Incentive Scheme*



**Legend:**

End-user bringing the LW to any of the 1<sup>0</sup> collection point

Transport of wastes through 3<sup>rd</sup> party transporter with SLA

Establishments with SLA to collect, store, and/or recycle wastes

Flow of consolidated LW transported by the 1<sup>0</sup> collection points to avail of the financial incentives

Financial incentive given per full container (commensurate to the cost of transport)

Incentive given per LW brought to the 1<sup>0</sup> collection point



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# Implementation Notes

CFL distribution gives the single biggest return on investment among lighting initiatives in terms of reduction in energy generation cost, deferment of power capacity addition and GHG emission reduction

Procurement of CFLs and services for distribution as one (1) lot facilitates handling and documentation processes.



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# Implementation Notes

Bidding documents should always incorporate safeguards such as testing and “stiff” penalties for non-compliance with the Terms of Reference for lamp quality.

Partnership with the private sector should be cultivated and maintained- managing complexities through partnership



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# Implementation Notes

MEPS setting and implementation of the Energy Labeling Program consistently provide savings in energy consumption and decrease the risk of the country from being a dumping ground of “shoddy” products

Conduct of Information, Education, Communication campaign should be well –prepared and well-timed with the distribution.



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# Implementation Notes

Collaboration with regional and international lighting bodies enhances knowledge and provides implementers with tools for policy directions and cooperation.

en.lighten should expand the toolkit to include LED for developing and emerging economies. (it would be a great help!)

Do you really think  
we'll save any money  
with those new  
**EFFICIENT** lightbulbs?



I dunno.  
Did we turn  
off the lights



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**Thank you!!!**

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## Efficient Lighting Pilot Projects, in Summary

### ANNUAL POTENTIAL SAVINGS

Component	Electricity, MWH	Deferred Capacity, MW	GHG, MT CO <sub>2</sub>
Government Building Retrofit	8,540	2.59	4,611
National Residential Lighting Program (8.6M CFLs)	244,842	191.65	132,215
Public Lighting Retrofit	2,767	0.632	1,494