



ENERGY EFFICIENCY STANDARD AND LABELING POLICY IN INDONESIA



Edi Hilmawan, Dr

*Energy Technology Center, Agency for
Assessment and Application of Technology.*

Mustafa Said

*Directorate General of Electricity and Energy
Utilization, Ministry of Energy and Mineral
Resources*



Presentation Outline



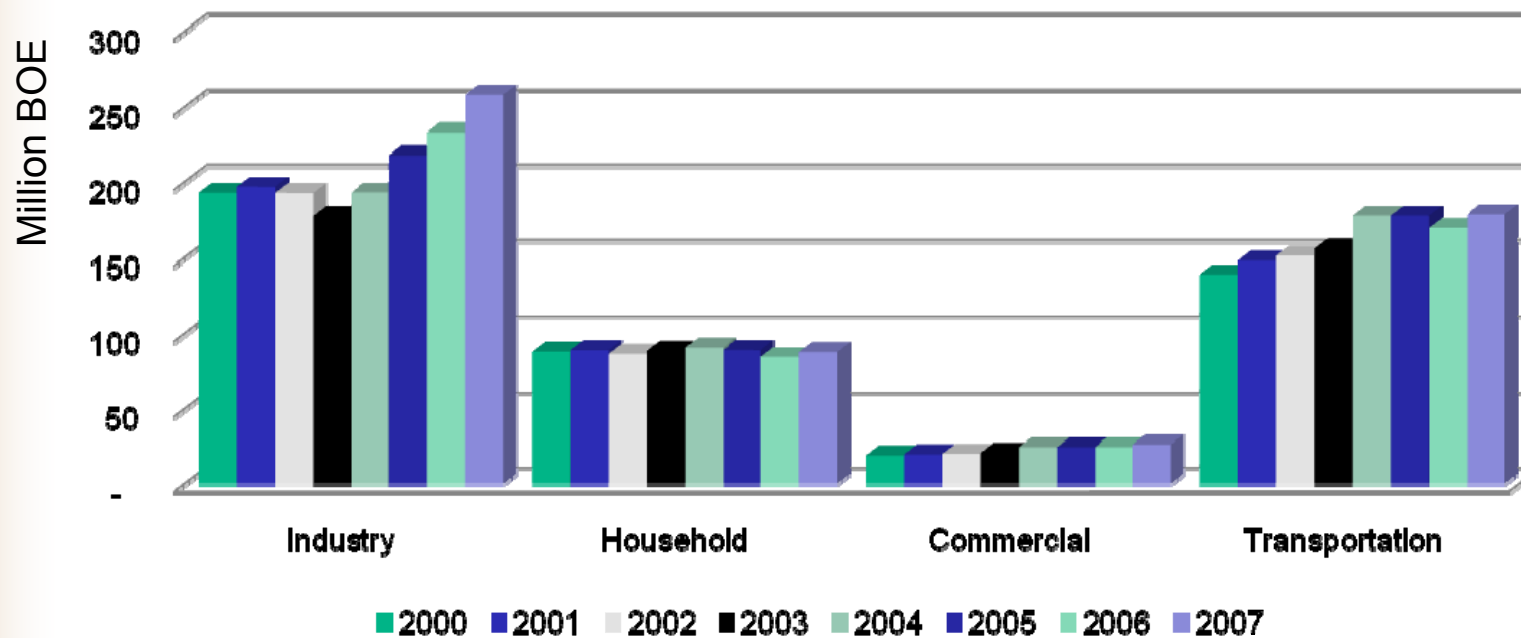
- Indonesia Energy Outlook
 - National Energy Policy
 - Energy Efficiency Standard and Labeling Policy
 - Implementation of Energy Efficiency Standard and Labeling
-



Indonesia Energy Outlook National Final Energy Consumption



Final Energy Consumption Per Sector



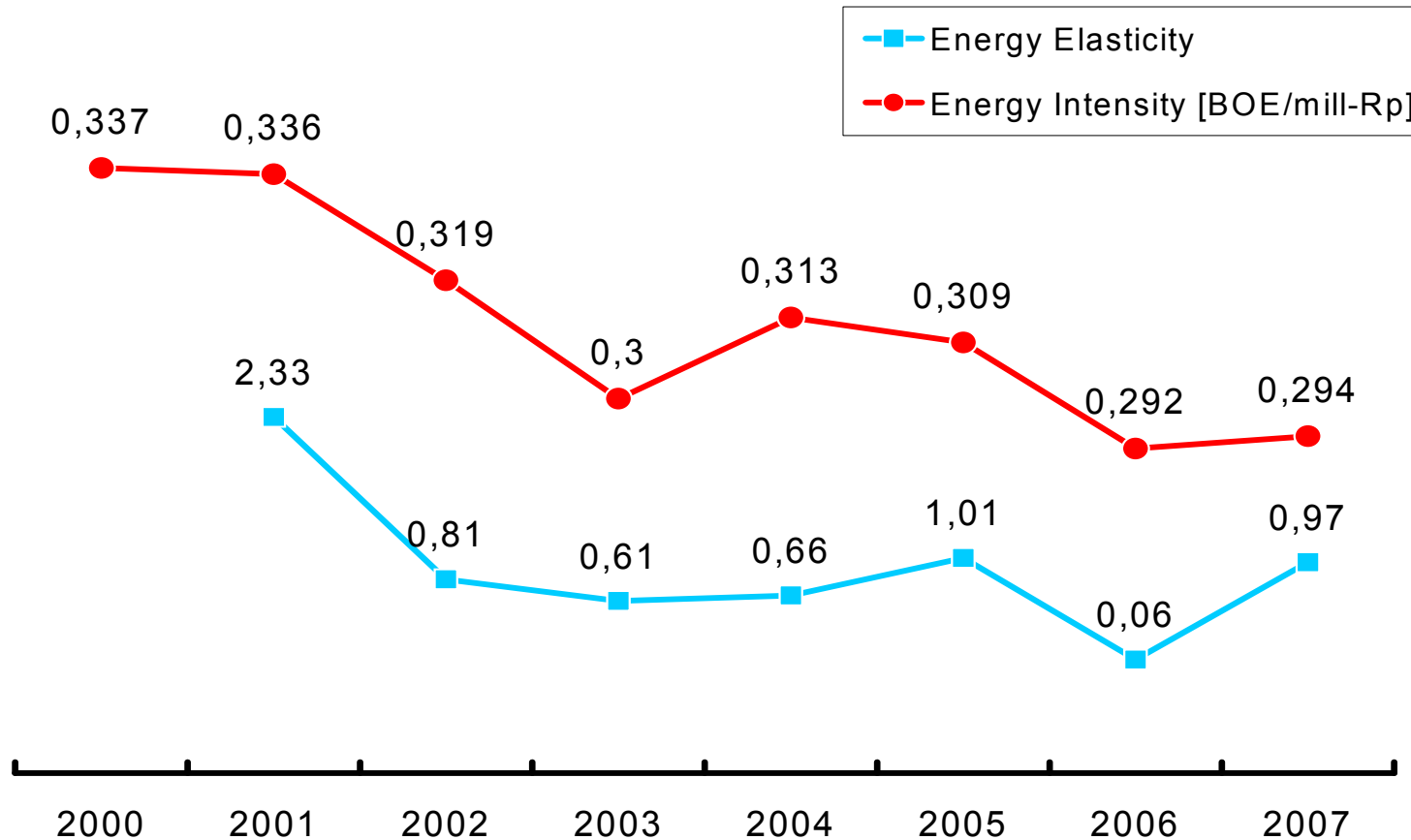
Average growth of energy consumption (last 5 years)

- Industry 6,3%
- Household 0,32%
- Commercial 5,67%
- Transportation 3,59%

Source: Data and Information Center-MEMR (2008)



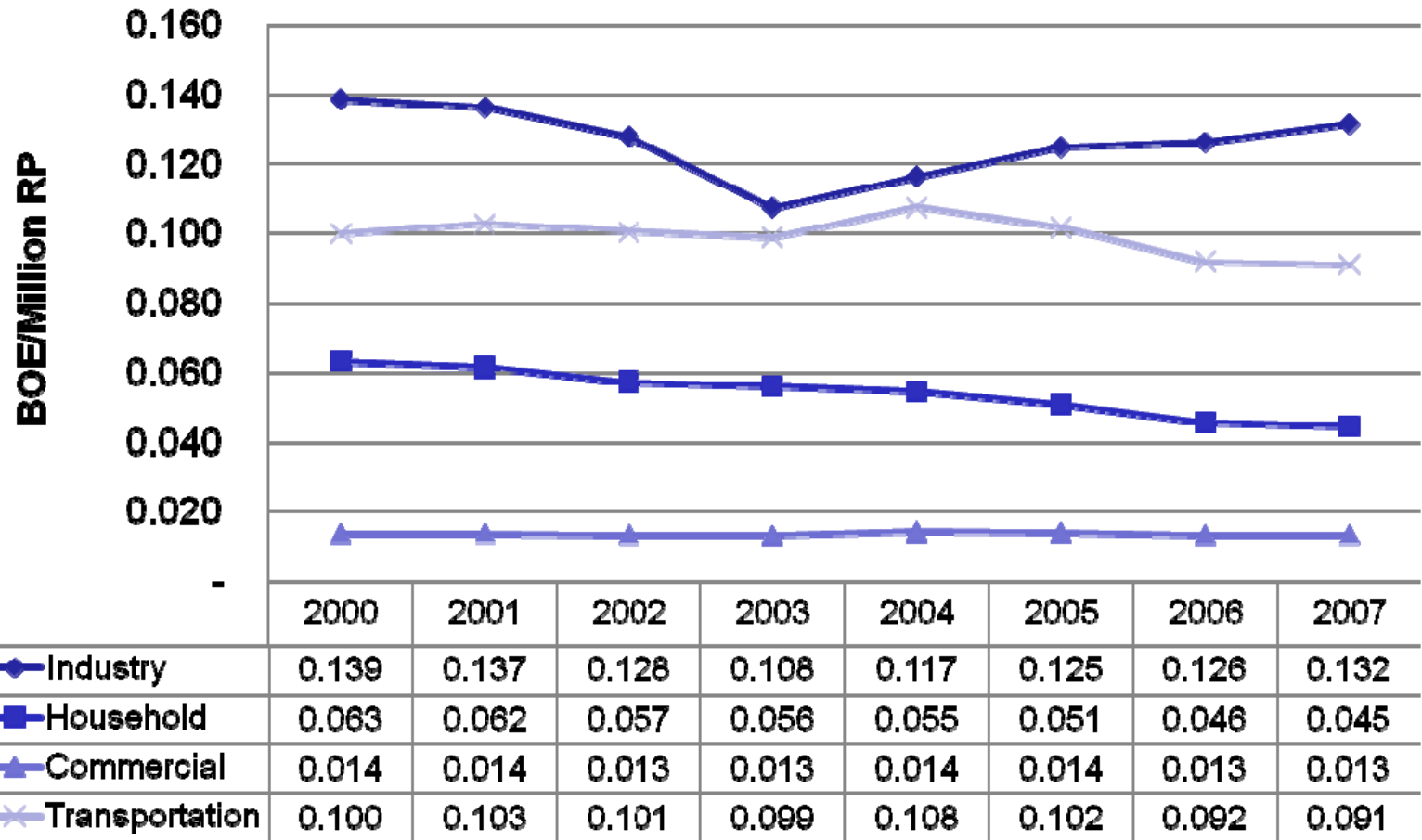
Indonesia Energy Outlook Energy Intensity and Elasticity



Energy intensity tends to decrease in recent 5 years



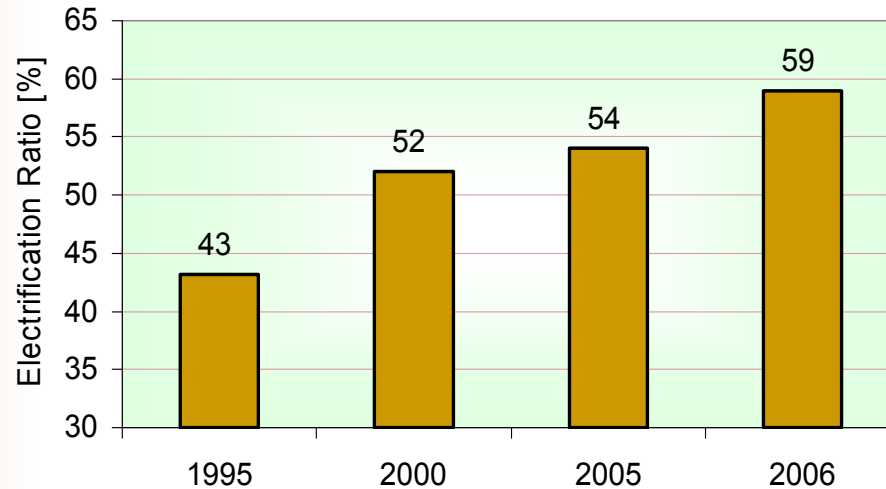
Indonesia Energy Outlook Energy Intensity per Sector





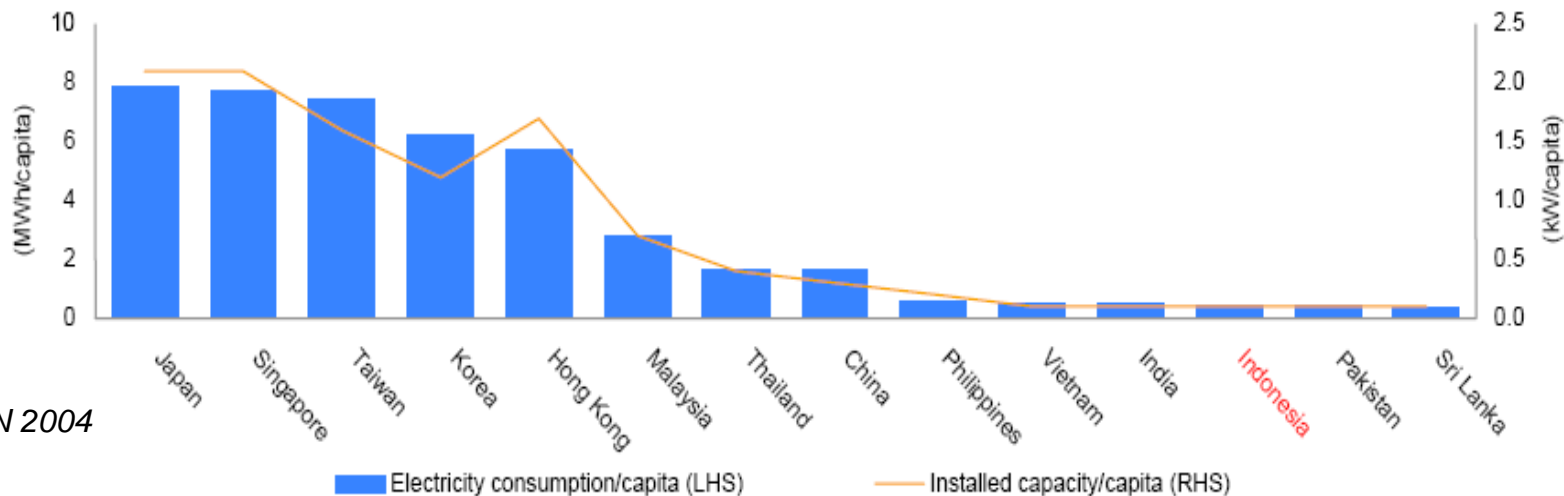
Indonesia Energy Outlook

Electricity Consumption and Electrification Ratio



Population : 238 million
 Installed Capacity :
 24,900 MW (0,10 kW/cap) Peak
 Electric Demand : 21,300 MW
 Annual Electricity Consumption :
 121,250 GWh (509,4 kWh/cap)

(Source, DGEEU 2007)



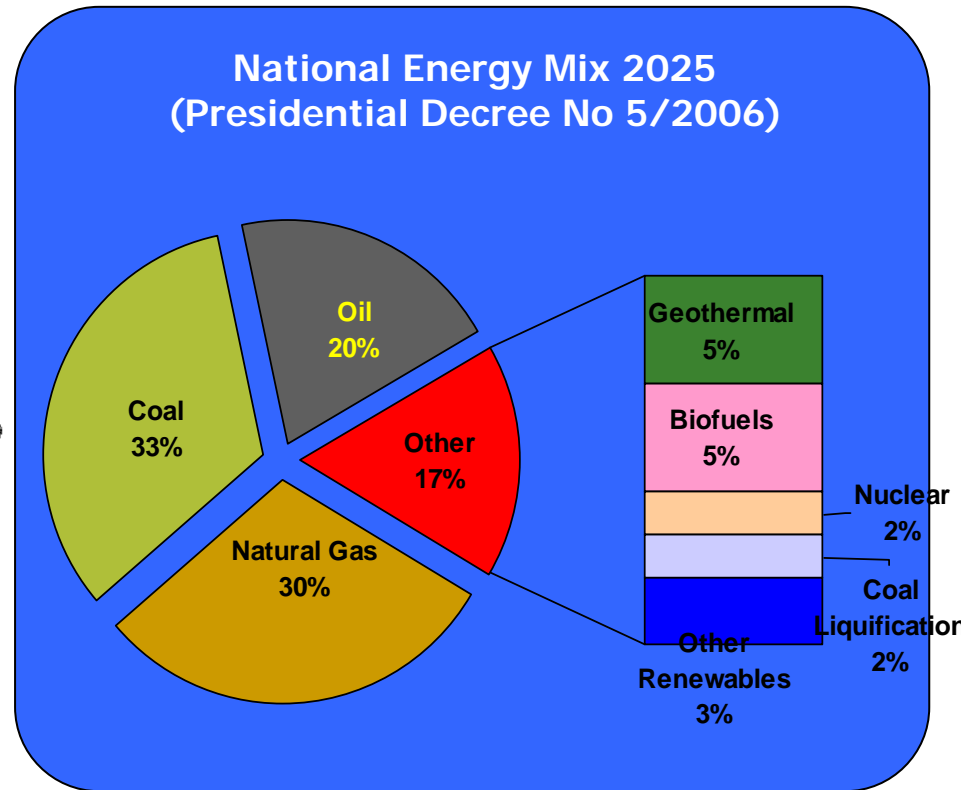
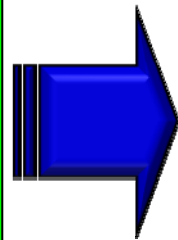
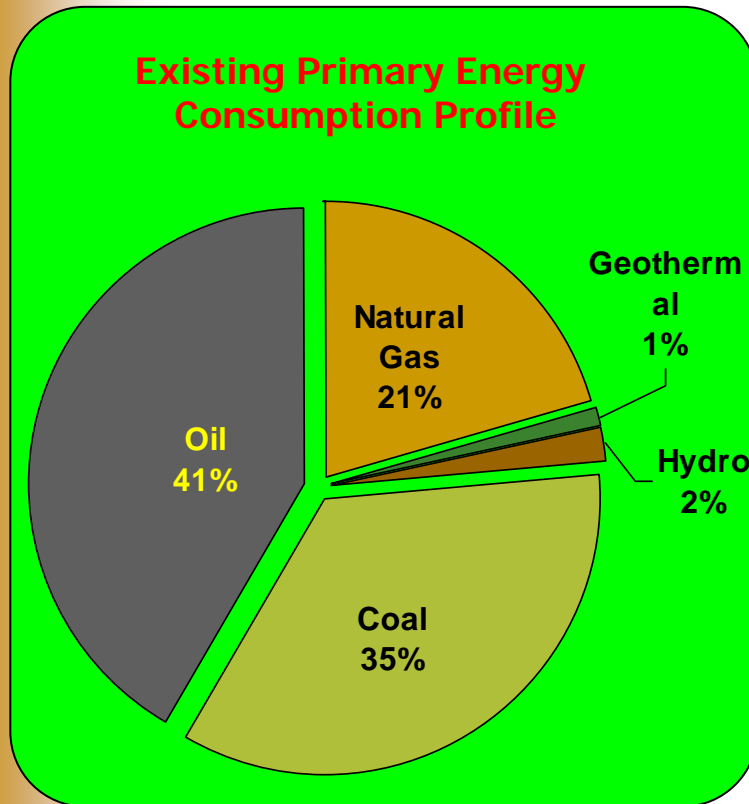
Source, PLN 2004



National Energy Policy National Energy Policy 2005-2025

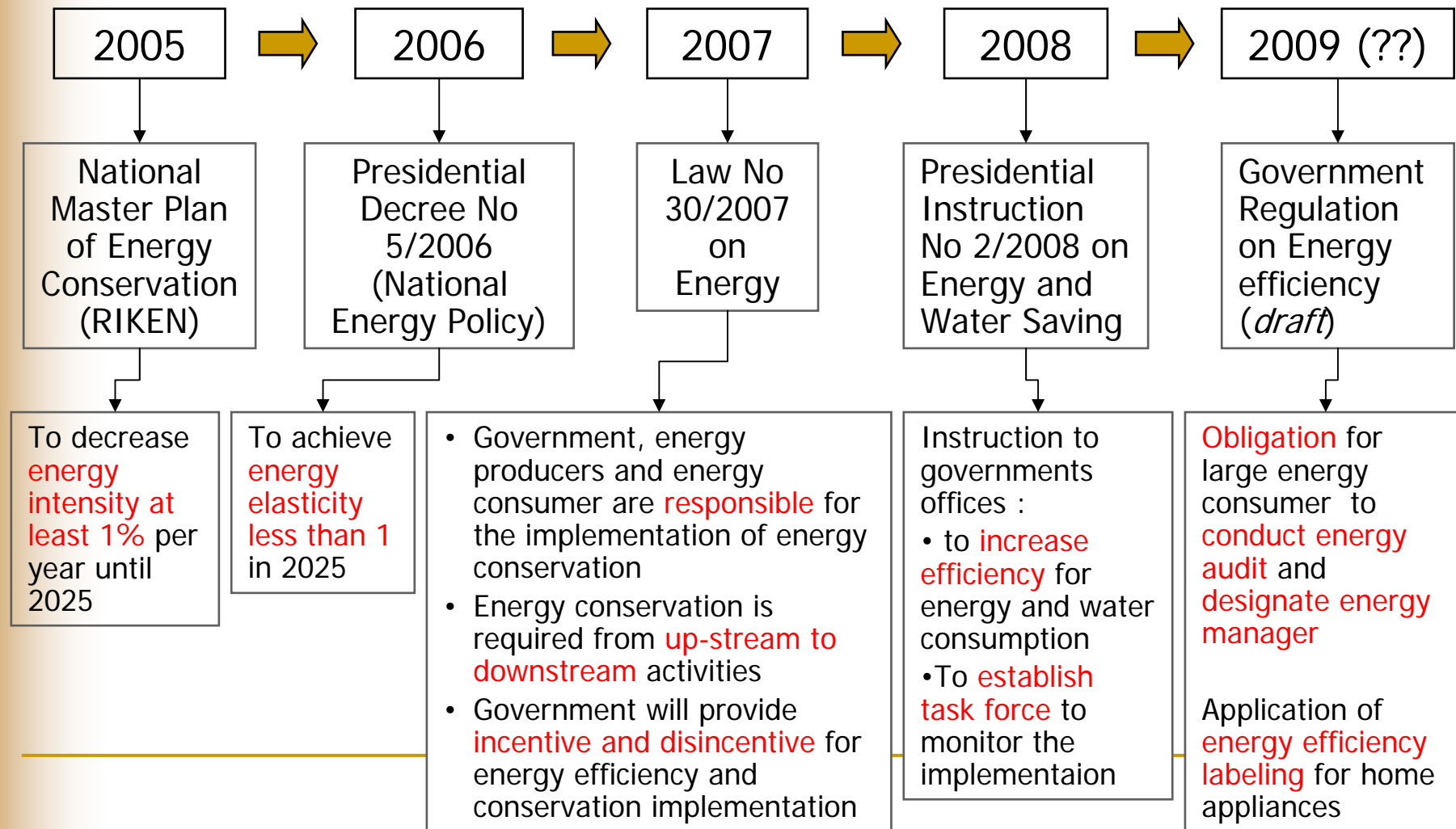


- Target in 2025 :**
1. *Optimal Energy Mix*
 2. *Energy Elasticity < 1*





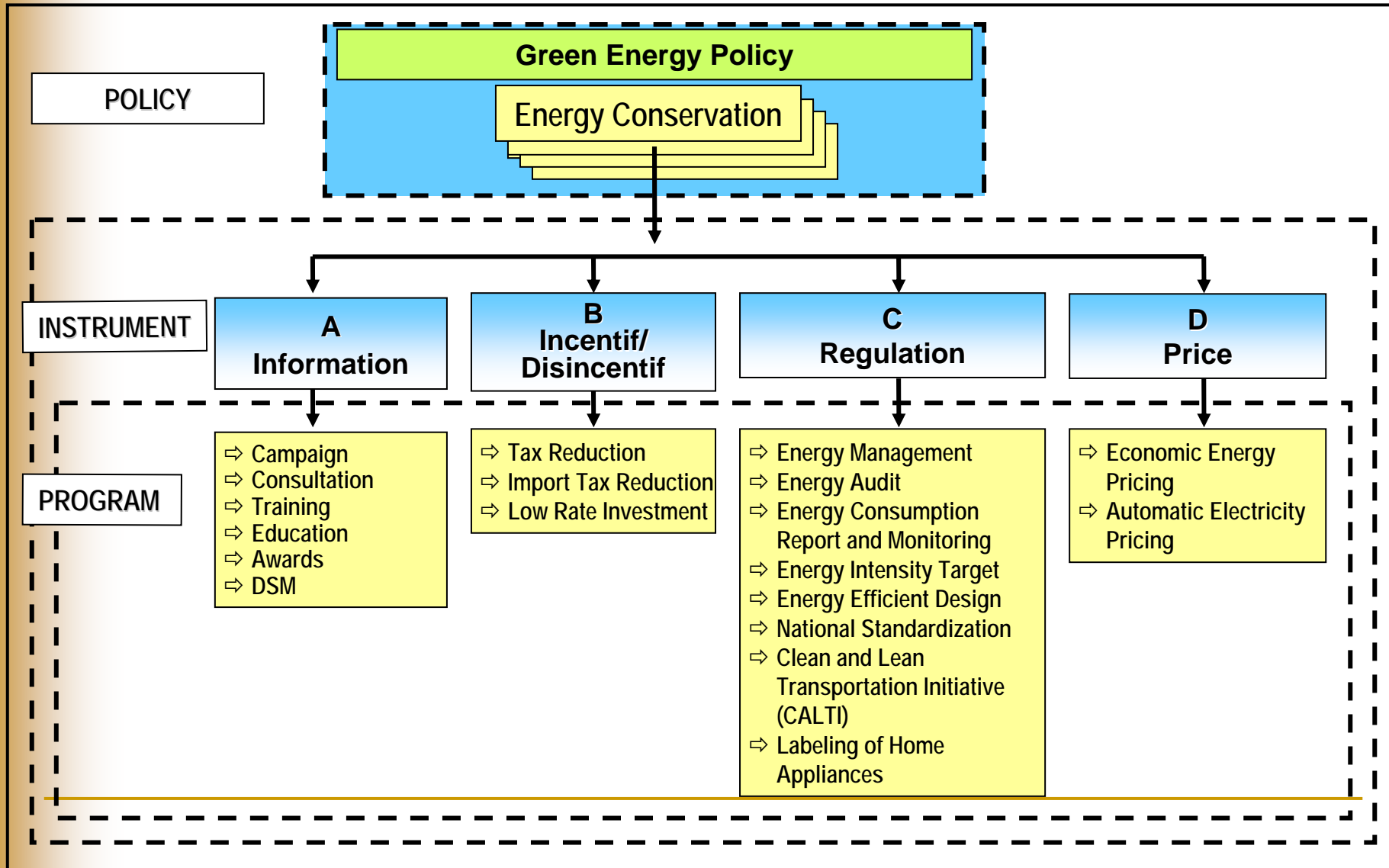
National Energy Policy Energy Conservation Policy and Regulation





National Energy Policy

Energy Conservation Policy

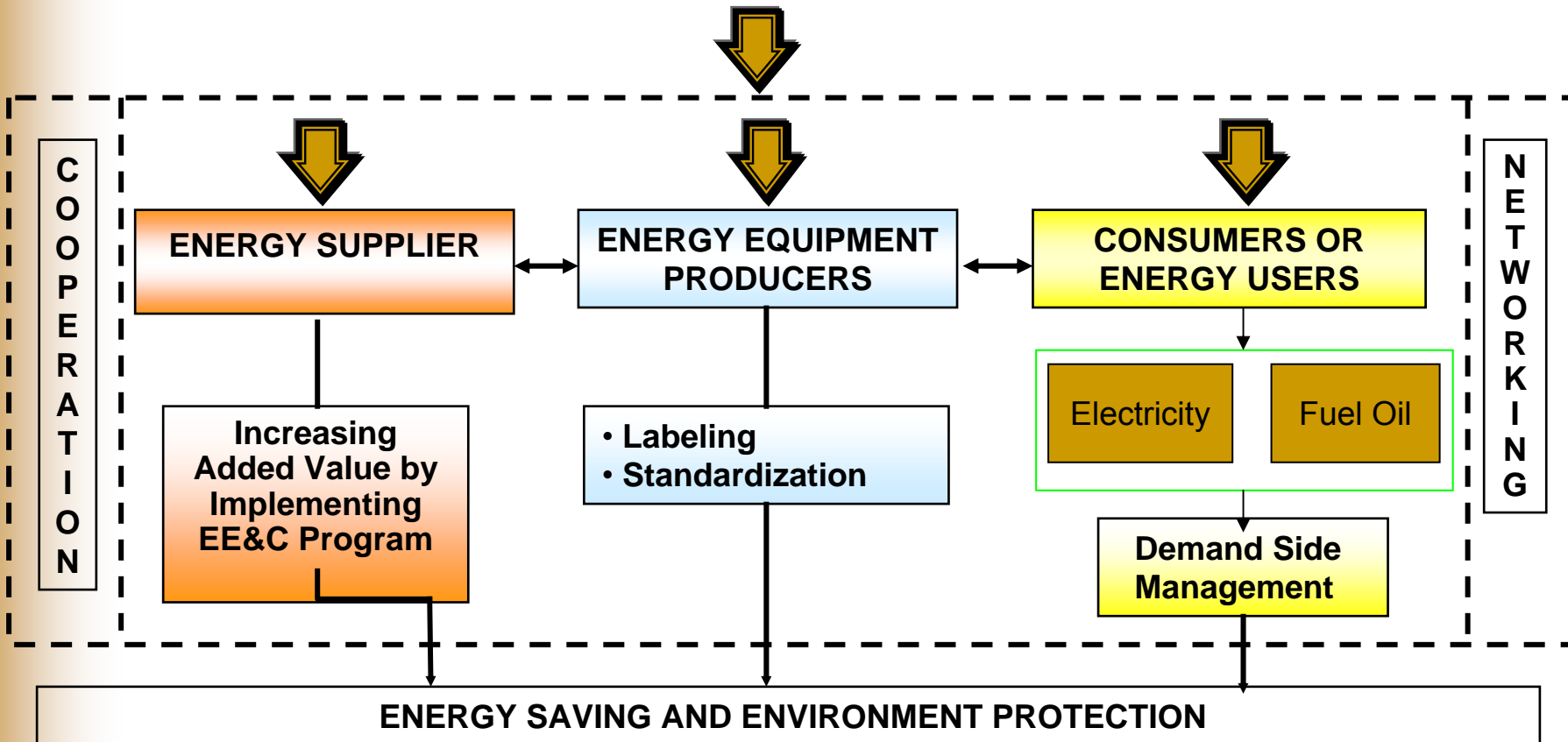




National Energy Policy Energy Conservation Strategy



ENERGY CONSERVATION STRATEGY

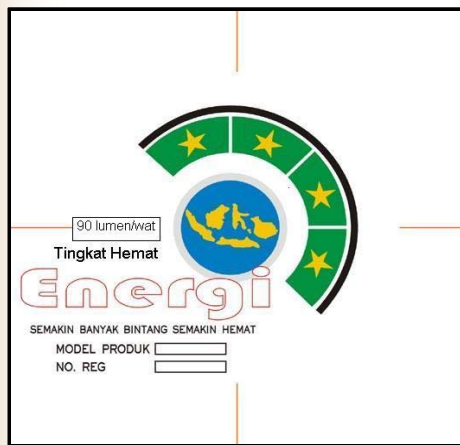




Implementation Regulation on Energy Efficiency Labeling



SNI 04-6958-2003 (Standard of Energy Saving Level Label for Electrical Household Appliances and it Kinds)



- To identify energy saving level for electrical household appliances and it kinds
- The standard includes :
 - form, size, color and symbol significance of the energy saving level label,
 - Location for the energy saving level label,
 - criteria of energy saving level,
 - energy saving level score and amount of star
- Reference :
 - Australia Standard AS 2575.1-1989
 - New Zealand Standard NZS 6205.1-1989

Director General EEU Decree No. 238-12/47/600.5/2003

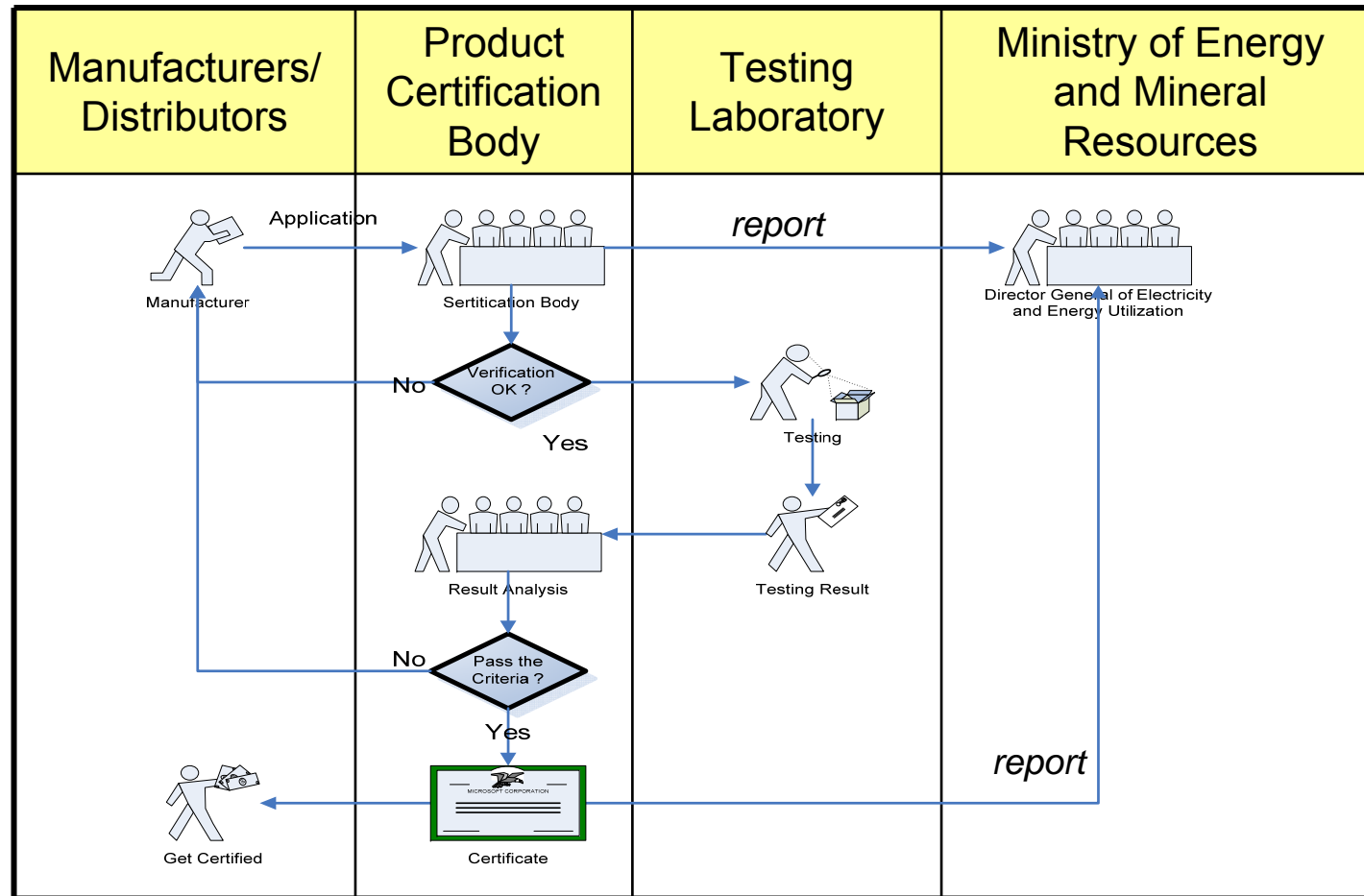
on the Procedure for Attachment of Energy Efficiency Label

Director General EEU Decree No. 94-14/47/600.4/2006

on the Appointment of Product Certification Body (LSPro) and Testing Laboratory for the Attachment of Energy Efficiency Label in Electricity Used Equipments



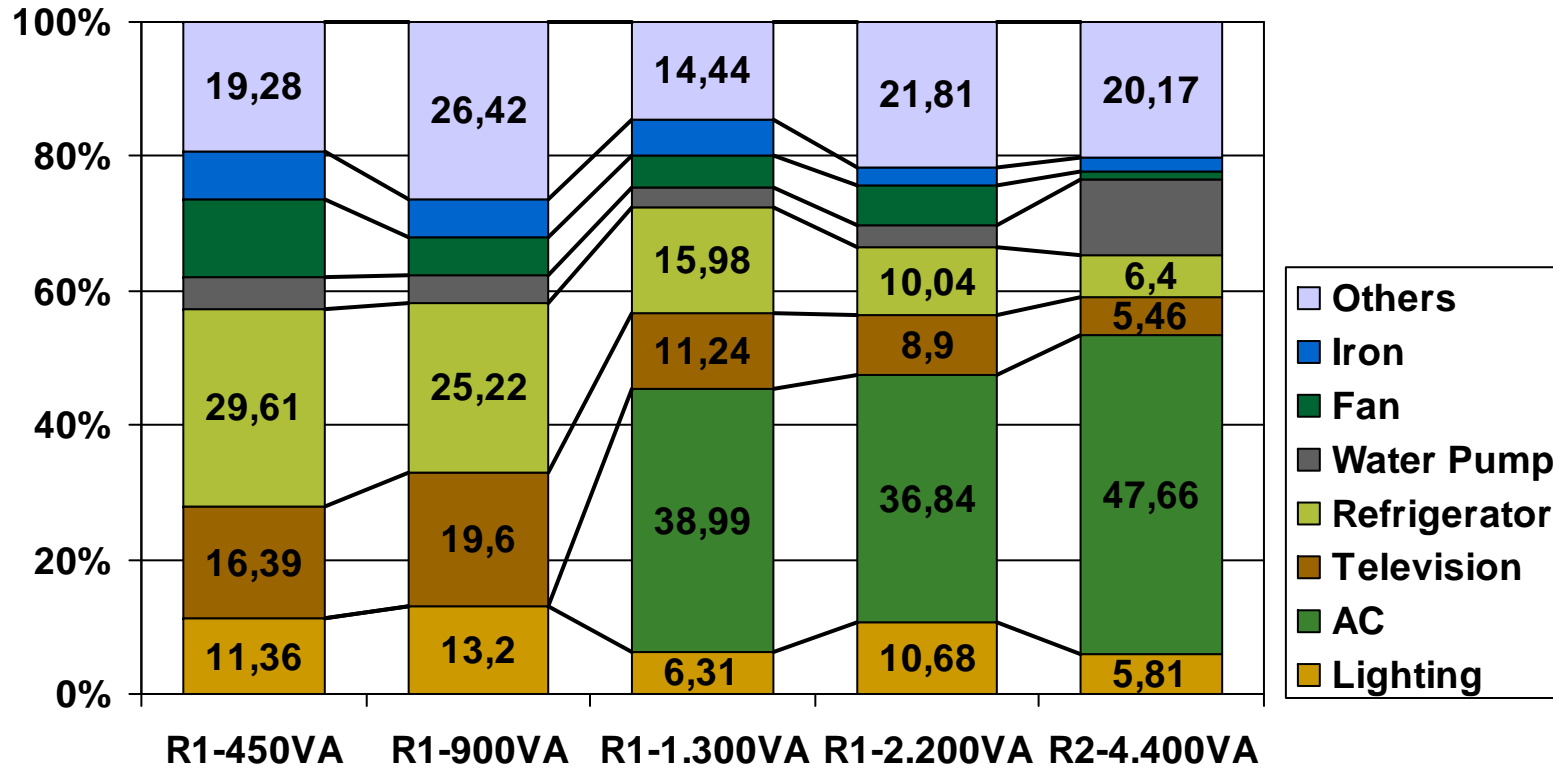
Implementation Flow Diagram of Energy Efficiency Labeling in Indonesia



- Product Certification Body : PT TUV Nord Indonesia, PT EMI, PT Sucofindo
- Testing Laboratory : P3TKEBT-DESDM, B2TE-BPPT, PT Sucofindo



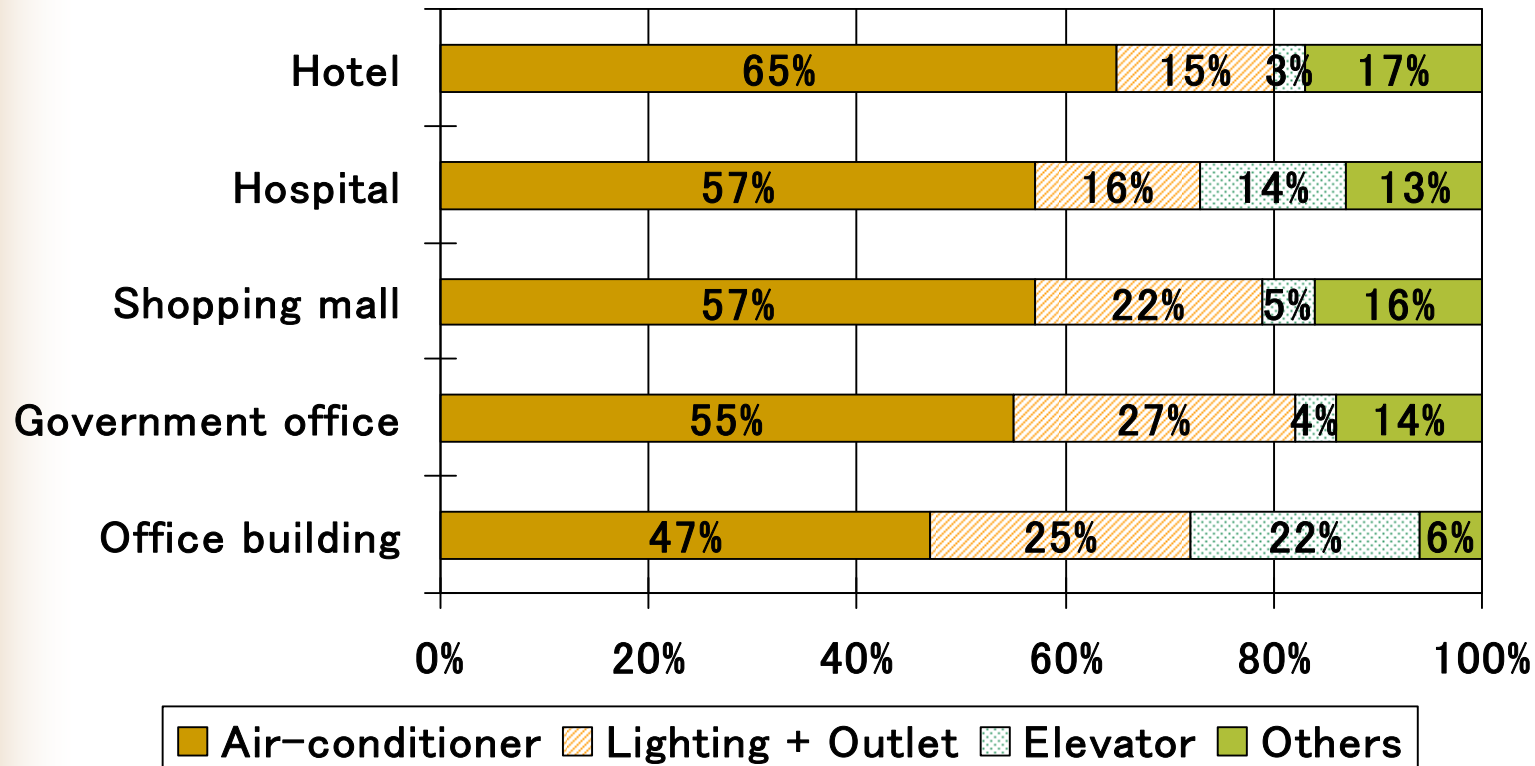
Implementation Typical Electric Power Consumption in Residential Users



More than 50% of electric power consumption in Residential users is for Refrigerator, Television, AC and Lighting



Implementation Typical Electric Power Consumption in Commercial Building


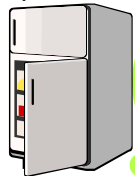





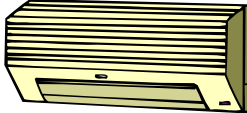



Most of electricity is consumed in air-conditioner and lighting.



Implementation Road Map of the Labeling Program



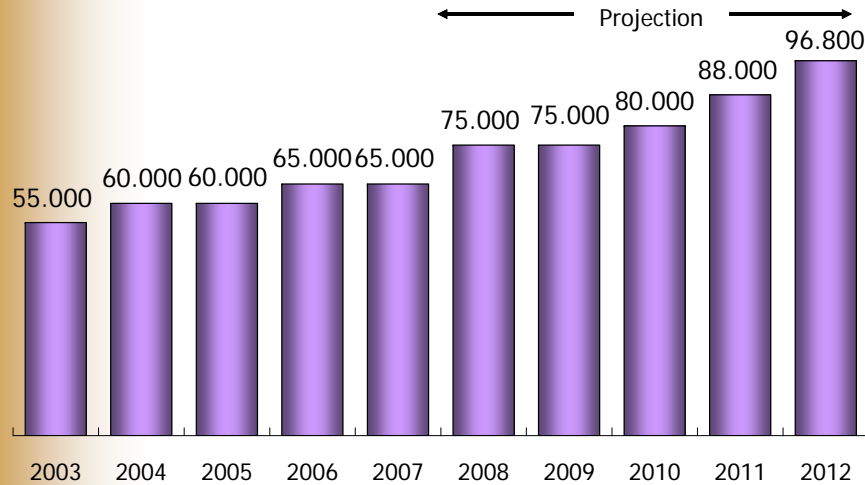
| | 2008 | 2009 | 2010 | 2011 | 2012 |
|------------------------|--|---|---|--|------|
| Label application |  CFL |   |  AC and Fan |  Ballast and Washing machine | |
| |  |  TV and Refrigerator |  |  Motor and Rice cooker | |
| Mandatory or Voluntary | V | V | ? | ? | ? |



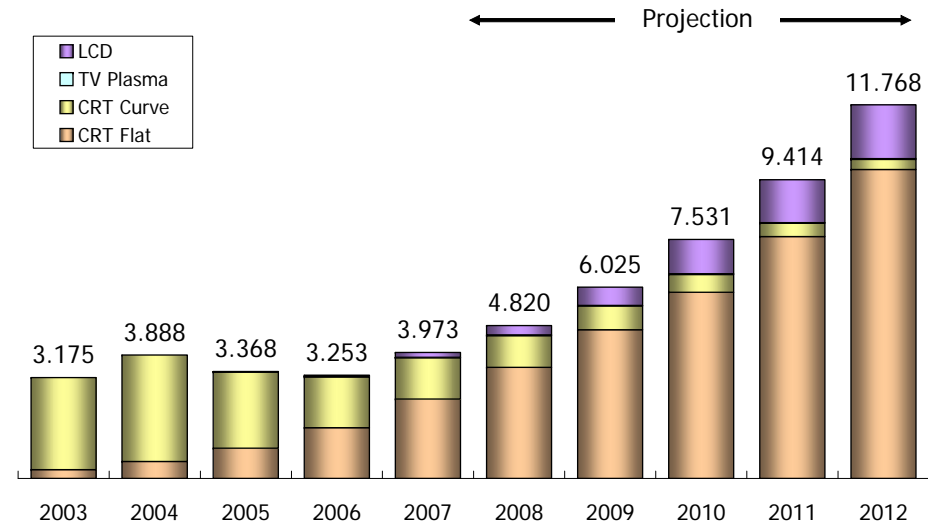
Implementation Annual Sales of Home Appliances



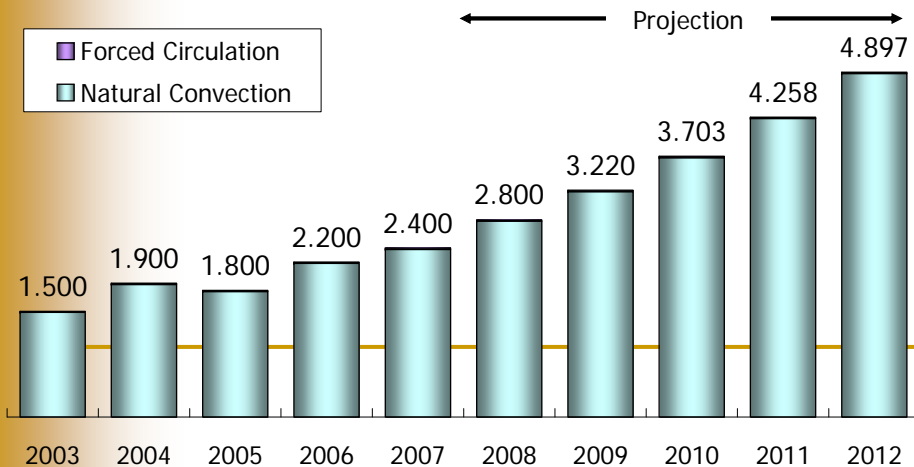
ANNUAL SALES OF LAMPS
(Thousand Units)



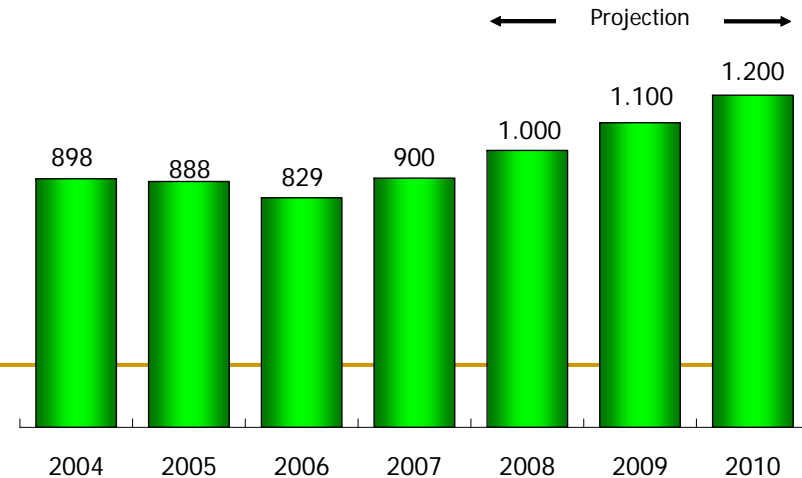
ANNUAL SALES OF TELEVISION
(Thousand Units)



ANNUAL SALES OF REFRIGERATORS
(Thousand Units)




ANNUAL SALES OF AC
(Thousand Units)





Implementation Energy Efficiency Labeling for CFL



| | | | | | |
|--|---|-------------|---------|---------|-------|
| Object | Compact Fluorescence Lamps (CFL) | | | | |
| Standard Reference | <i>IEC 60969 : 1988, (Self-ballasted lamps for general lighting service – Performance requirements)</i> | | | | |
| Testing | Life Cycle, Power Factor, Excess Voltage, Effication | | | | |
| Energy Efficiency Index | Lumen/Watt | | | | |
| Energy Efficiency Rating  | | Watt | | | |
| | Rating | 5 – 9 | 10 – 15 | 16 – 25 | ≥ 26 |
| | ★★★★ | >55 | >57 | >59 | >61 |
| | ★★★ | 52-55 | 54-57 | 56-59 | 58-61 |
| | ★★ | 45-52 | 51-54 | 53-56 | 55-58 |
| ★ | 45-49 | 46-51 | 47-53 | 48-55 | |



Implementation Energy Efficiency Labeling for Refrigerators




| | | | |
|---------------------------------|---|----------------------------|---------------------------|
| Object | Natural/Forced Circulation Refrigerators | | |
| Standard Reference | SNI 04-6710-2002, SNI 04-6711-2002, SNI 04-6958-2003 | | |
| Testing | Volume Determination, Temperature Rise, Energy Consumption | | |
| Energy Efficiency Index | kWh/year | | |
| Energy Efficiency Rating | Class | <i>Natural Circulation</i> | <i>Forced Circulation</i> |
| | | <i>Volume ??</i> | <i>Volume ??</i> |
| | ★★★★★ | <i>Under consideration</i> | |
| | ★★★★ | <i>Under consideration</i> | |
| | ★★★ | <i>Under consideration</i> | |
| ★★ | <i>Under consideration</i> | | |
| ★ | <i>Under consideration</i> | | |





Implementation Energy Efficiency Labeling for TV




| | | | | | | | | | | |
|---------------------------------|---|-------|--------|----------------------------|---------------|------|-----|-----|-----|-----|
| Object | CRT, LCD TV, Plasma TV | | | | | | | | | |
| Standard Reference | <i>JIS C 6101-1</i> <i>IEC 60107-1</i> | | | | | | | | | |
| Testing | Standby Power, Operational Power, Energy Saving Mode | | | | | | | | | |
| Energy Efficiency Index | kWh/year | | | | | | | | | |
| Energy Efficiency Rating |  | Class | CRT | | LCD/Plasma TV | | | | | |
| | | | Rating | ≤21" | >21" | ≤27" | 32" | 37" | 42" | 46" |
| | | | ★★★★★ | <i>Under consideration</i> | | | | | | |
| | | | ★★★★ | <i>Under consideration</i> | | | | | | |
| | | | ★★★ | <i>Under consideration</i> | | | | | | |
| ★★ | <i>Under consideration</i> | | | | | | | | | |
| ★ | <i>Under consideration</i> | | | | | | | | | |



Implementation Energy Efficiency Labeling for AC



| | | | | | | | | |
|--|---|--------------|-------------------------------|------|------|-------|-------|-------|
| Object | Room AC (Non Ducting Type) | | | | | | | |
| Standard | ISO 5151:1994 | | | | | | | |
| Reference | JIS C 9612 | | | | | | | |
| Testing | Power Consumption, Cooling Capacity (Calorimeter Method) | | | | | | | |
| Energy Efficiency Index | COP | | | | | | | |
| Energy Efficiency Rating  | Rating ★★★★★ ★★★ ★★ ★ | Class | Cooling Capacity (BTU) | | | | | |
| | | | 5000 | 7000 | 9000 | 12000 | 18000 | 25000 |
| | | | <i>Under consideration</i> | | | | | |
| | | | <i>Under consideration</i> | | | | | |
| | | | <i>Under consideration</i> | | | | | |



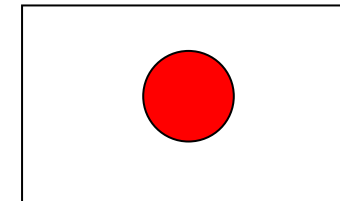
Implementation Energy Efficiency Labeling for Air Circulating Fan



| | | |
|---------------------------------|---|----------------------------|
| Object | Standing type, Hanging Type | |
| Standard Reference | IEC 879 (1986) | |
| Testing | Power Consumption, Air Velocity, Air Flow, Rotation Speed | |
| Energy Efficiency Index | $(\text{Air Flow}) / (\text{Power Consumption})$ | |
| Energy Efficiency Rating | Class | Diameter |
| | Rating | |
| | ★★★★★ | <i>Under consideration</i> |
| | ★★★ | <i>Under consideration</i> |
| | ★★ | <i>Under consideration</i> |
| ★ | <i>Under consideration</i> | |



Thank You



**Directorate General of Electricity and Energy Utilization
Ministry of Energy and Mineral Resources**

Jl. H.R. Rasuna Said Blok X 2, Kav. 07 dan 08, Kuningan
Jakarta 12950 Indonesia

Tel. +62-21-5225180, Fax: +62-21-5256044



**Energy Technology Center,
Agency for Assessment and Application of Technology**
Gd 620, Kawasan Puspiptek, Serpong, Kab Tangerang 15314
Banten Indonesia

Tel. +62-21-7560550, Fax. +62-217560904

E-mail: hilmi0374@yahoo.com



References



- National Master Plan of Energy Conservation (RIKEN, 2005)
- Presidential Decree No 5/2006 (National Energy Policy)
- Law No 30/2007 (Energy Law)
- President Instruction No 2/2008 (Energy and Water Saving)
- JICA Study on Energy Efficiency and Conservation Improvement in Indonesia (2007-2008)
- Indonesian Electricity Current Status (PLN, 2007)
- Electric Power Statistics (2006)
- Testing Standard References
 - ❖ SNI 04-6710-2002
 - ❖ SNI 04-6711-2002
 - ❖ SNI 04-6958-2003
 - ❖ JIS B 8615-1
 - ❖ JIS C 9612
 - ❖ JIS C 6101-1
 - ❖ IEC 879 (1986)
 - ❖ IEC 60107-1
 - ❖ ISO 5151-1994